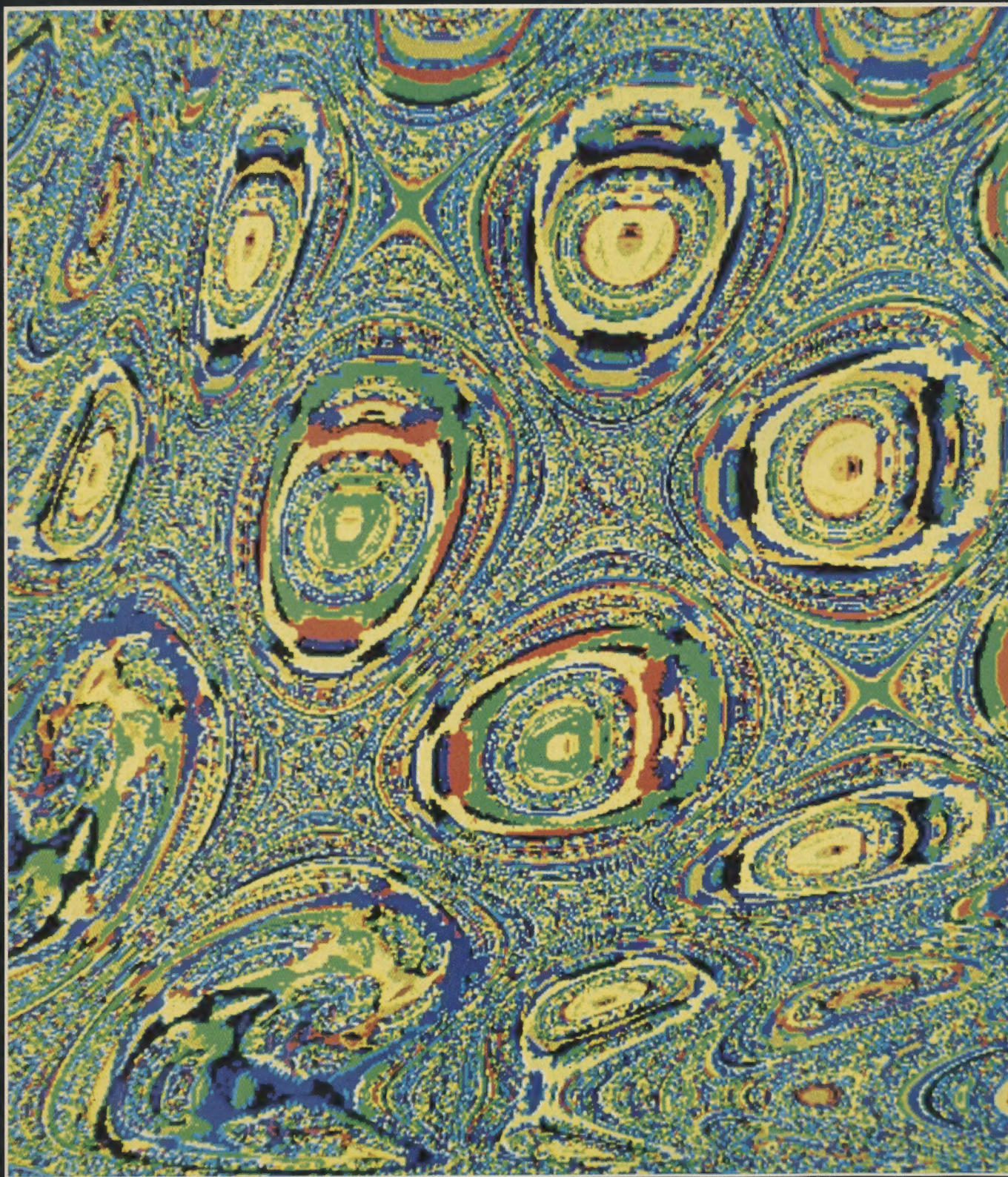
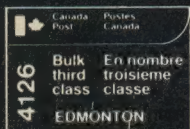


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Spring 1990

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Looking at
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NEW TRAIL

Friends of mine who have taught junior high school assure me that chaos in the classroom is nothing new. However, the chaos that is front and centre in Tom Roger's classroom every Tuesday and Thursday is something different.

Rogers teaches *Math 470: An Introduction to Chaotic Dynamical Systems*, a new course offered by the University of Alberta math department for the first time this term. Before I talked with Rogers and his departmental colleague Jim Muldowney and on their recommendation read science journalist James Gleick's excellent book *Chaos: Making a New Science* I had been only vaguely aware that in recent years some strange discoveries had been made which pointed to an order of sorts shaping seemingly random occurrences.

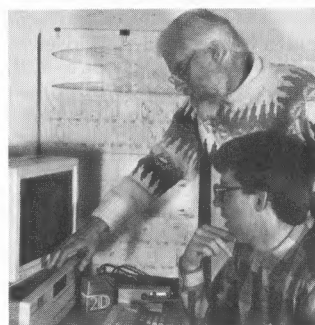
I had no idea how much work was being done in this area or that this work had coalesced into the "new science" of chaos. (Actually Rogers and Muldowney are just as apt to refer to this work as nonlinear dynamics—the two descriptions are practically interchangeable but the term "chaos", with its wealth of

resonance, is the one that has captured popular attention.)

I've found it fascinating these past few months to learn about chaos and to discover that researchers at the University of Alberta have made and continue to make important contributions to this field of study which is changing the way many people look at our world. To a great extent the insights related to chaos depend upon graphic imagery, and the wonderful images arising from the work done at the University of Alberta by Dr. Rogers and his associates are as exciting as any the new science has produced.

Trying to distil all of what I learned about chaos and the contributions of U of A researchers into an article for *New Trail* has not been easy, but I hope that the story "Images of Chaos" in this issue will provide some basic understandings about chaos theory to those of you not already familiar with it and communicate some of the wonderment this new science has prompted in me.

Rick Pilger
Editor



Explorations: 8

A Personal Journey

A graduate shares her memories of a canoe trip which traced a historic trading route across Western Canada.

A Window on Alberta 14

A journal being published at the University brings together a variety of research and commentary related to the province.

Images of Chaos 15

Wonderful images are part of a fascinating "new science" which is changing the way we look at our world.

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Cover

Surprising manifestations of order amidst the seemingly chaotic: this wonderful image is one of a series based on work being done at the U of A by mathematician Tom Rogers, a specialist in chaos theory.



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U of A Archives

New Plans for Timms Bequest

Plans for the Timms Collections Centre, which was to have been built on campus, have been cancelled. Instead, a new fine arts centre will be constructed using money from the estate of Albert Timms, contributions from the 75th Anniversary Campaign, and provincial matching donations.

Plans for the collections centre were shelved by the University's Board of Governors in November when construction bids came in significantly higher (more than 25 per cent higher) than anticipated and projections for the centre's operating cost showed an additional annual claim on the University's resources greater than the Board felt it could support.

At its December meeting the Board approved an alternative plan for the money that had been assembled around the Timms' bequest: the Timms Fine Arts Centre to house the University's Studio Theatre and Department of Drama.

It is possible that as planning proceeds areas for

other fine arts activities may also be incorporated. However, the new fine arts centre is expected to house teaching and research activities which are already supported; therefore significant additional operating costs are not anticipated.

While the new Timms Fine Arts Centre has been greeted with enthusiasm—it met with the unanimous approval of the deans at Deans' Council—there has also been concern about what will now happen to the University's collections.

At the January meeting of the University's Board the volunteer group Friends of the University of Alberta Museums championed the cause of the collections, which they described as being as important to the University as the Library, and pressed for some provisions to improve the conditions under which many of the University's artifacts and specimens are held. Specifically the Museums Friends asked that some exhibition space be incorporated into the new Timms Centre and that administrative and

Good News was the title of this 1979 Studio Theatre production and good news was what the theatre got recently. It's getting a new home.

conservation areas be included in other University buildings.

The Board agreed to work with the Museums Friends to reach an understanding of the recommendations, but Board of Governors Chair John Schlosser and President Paul Davenport stressed that the problems facing the collections must be considered in the context of the over-all financial situation in which the University finds itself.

"The agony that you are describing is a general one," said President Davenport, mentioning budget cuts in the Faculty of Arts and to the Library, which he said is "no longer acquiring books at a rate appropriate to a research university."

Extension Gets New Building

The Faculty of Extension is getting a new home.

In November the University

of Alberta Board of Governors approved expenditures up to an amount of \$3,215,000 to acquire land and to plan for a facility for the Faculty of Extension.

The Faculty will occupy about 5,500 square metres in the new building to be built at the corner of 83 Street and 112 Avenue (just slightly southeast of the University's hospital complex). Space in the new building will also be available for lease. It is to be completed in the summer of 1991.

At present the Faculty of Extension is occupying space scattered in and around campus, having moved from Corbett Hall, which is currently undergoing renovations.

Honorary Degrees Awarded

The highlights of Fall Convocation 1989 included the awarding of three honorary degrees to individuals in recognition of their personal accomplishments.

Honorary degrees went to the Honorable Monique Bégin, Sidney (Bob) Blair and Robert Folinsbee during the two days of convocation, 16 and 18 November.

Mme Bégin, who delivered the convocation address and received her honorary degree on 18 November, was the first woman from Quebec ever elected to the House of Commons. First elected in 1972, she went on to hold two portfolios in the federal cabinet, serving as minister of national revenue and later as minister of national health and welfare. She currently holds the Chair in Women's Studies at the Universities of Ottawa and Carleton.

Bob Blair, who delivered the convocation address on 16 November, is the chair and chief executive officer of Nova, An Alberta Corporation. A companion of the Order of Canada, he has also had his contributions and

accomplishments recognized through the *Globe and Mail's* Businessman of the Year Award and the Frank Spragins Gold Medal of the Association of Professional Engineers, Geologists and Geophysicists of Alberta.

The third honorary degree recipient was a long-time U of A faculty member. Robert Folinsbee, whose work in meteoritics (he recovered most of the Bruderheim meteorite which was the foundation of the University's meteorite collection) is widely known, was chair of the Department of Geology for 14 years. His many honors include being named an officer of the Order of Canada and a fellow of the Royal Society of Canada.

University in Excellence Networks

The University of Alberta will take part in half of the 14 research networks announced recently by the federal government as part of the Network of Centres of Excellence program.

The networks established under the program are consortiums of universities and institutions addressing

specific research objectives.

The program itself is designed to strengthen Canada's scientific and technological capabilities.

The program involved a competition which drew 158 proposals from across the country. In late October the 14 successful networks were announced along with the location of an administrative centre for each. The only administrative centre announced for the province of Alberta was that for the Canadian Network for Space Research which will be administered from the University of Calgary.

University of Alberta Vice-President (Research) Bob James spoke for the University when the competition results were announced. "I think it's very encouraging we're involved," he said, but added that the University would have liked to obtain at least one administrative centre. "That part's a bit of a disappointment," said James.

The vice-president (research) noted that the U of A had a very high participation rate from the beginning with 73 proposals submitted. He went on to estimate that over a four-year period the University can expect to receive almost \$15



It's on its way! The construction of Edmonton's LRT extension to the University is well underway. Here a group of engineering students gets a close-up view of the tunnelling work in progress. As a result of the underground transit line construction, a portion of 89 Avenue on campus has been closed to traffic and bus stops relocated to the corner of 87 Avenue and 114 Street.

1990 DISCOVERY ADVENTURES

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JOURNEY OF THE CZARS

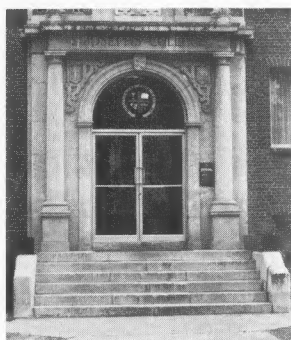
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5-18 August 1990

Now you can enjoy a unique tour of the best of the Soviet Union and find out why a visit to this country is like nothing you've ever done before. Begin by exploring the grandeur of Moscow, including the impressive Kremlin and Red Square, during your three-night stay. Next, head to Kazan, capital of the Tatar Autonomous Republic, to begin a six-night cruise of the Volga River aboard the *M.S. Alexander Pushkin*. Disembark at Volgograd and fly to the magnificent city of Leningrad. Visit the Hermitage Museum and Petrodvorets — the summer palace of the Czars. And you can begin the tour with an optional two-night extension in Ireland. Book early for this, our most popular program.

For more information about the 1990 Discovery Adventures, please contact Sandra Kereliuk in the Office of Alumni Affairs, (403) 492-3224. Waiting lists are maintained for "sold-out" tours.

*Prices shown are lowest available, per person (double occupancy) from the gateway city indicated and are subject to change.



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million as a result of its involvement in the various networks.

In addition to being involved in the Calgary-based space research network, the U of A is participating in the networks undertaking research related to bacterial diseases, high performance concrete, robotics and intelligent systems, telecommunications, neural regeneration, and protein engineering.

Heart Attack Treatment Improved

New technical applications and treatments developed at the University of Alberta promise to minimize damage to the heart from a heart attack and lead to much higher rates of long-term

survival for heart attack victims.

Using an ultrasound technique called echocardiography, cardiologist Bodh Jugdutt can determine the exact location of a heart attack, measure the amount of muscle tissue damaged, and monitor architectural changes taking place in the heart as it heals.

A certain amount of heart tissue dies within hours after a heart attack because it has been deprived of blood supply. That dead tissue is pulled, stretched, and thinned by the heart's regular beating action and the thinned area tends to bulge outward. After about two weeks, scar tissue cements the distortion and makes it permanent. Prolonged stress on the heart wall eventually enlarges the entire heart, and death often results within a year.

Using echocardiography to watch this process unfold after a heart attack enabled Dr Jugdutt to develop treatment that minimize structural damage to the heart. In a recently completed five-year clinical trial, mortality at one year was reduced by 35 percent.

That improvement was due to two discoveries. One is that administering a drug such as nitroglycerin within the first few hours after a heart attack can save some of the tissue that otherwise would die.

Second, the research group learned that administering the drug during the first few weeks after a heart attack can reduce the force pulling and pushing on the damaged heart wall.

A new trial is now in progress to compare treatments given at various stages of the healing process.

Around and About

■ U of A professor of speech pathology and audiology Einer Boberg is spending five months (February through to June 1990) as a visiting professor at Kuwait University, where he is establishing a department of speech pathology and audiology. This will be the first university-level speech pathology school in the Middle East.

■ At the 39th Canadian Chemical Engineering Conference held in Hamilton recently, three faculty members from the U of A were in the spotlight. Dean of Engineering Fred Otto and SE Wanke, chair of the chemical engineering department, were recipients of the award for the best paper in the Canadian Journal of Chemical Engineering (the paper's other authors were HA Rangwala and JA Szymura), and professor Sirish Shah was named winner of the Albright and Wilson Americas Award.

■ Charles Baker, professor and chair of the Department of Stomatology in the U of A Faculty of Dentistry, was recently elected president of the Royal College of Dentists of Canada for a two-year term.

■ Two members of the University's Board of Governors recently received prestigious awards. Jack Scott, who serves as the Board's vice-chair and chair of its building committee, was recently inducted into the Canadian section of the International College of Dentists. Jake Superstein, another public member on the Board, was awarded the Hospitler Order of St John, a venerable award which is given out infrequently.

■ Dale Schula, chair of the University's Department of Athletics, will be travelling to Sapporo, Japan for the Winter Universiade Games in 1991. He will serve as the Canadian team's *chef de mission*.

■ Roy Bennett, director of the University's materials management department, was the 1989 recipient of the Purchasing Management Association of Canada's Fellowship Award, which recognizes individuals who have "distinguished themselves by the character of their contributions to the field of purchasing."

■ The University's Faculty of

Rehabilitation Medicine has created the Rehabilitation Research Centre to facilitate such research on campus and to act as a link to other universities and hospital-based rehabilitation research centres across the country. It is expected that in addition to its consultative work with researchers, the Centre will sponsor workshops, seminars and symposia.

■ The Royal College of Physicians and Surgeons of Canada has bestowed the 1989 Royal College Medal in Medicine on Jack Jhamandas, an assistant professor of medicine at the U of A.

■ A former associate dean of science is among those individuals whose passing saddened the University community in recent months. John Hooz, a professor of chemistry who joined the chemistry department in 1965 and served as associate dean of science in the early '80s, died at his home in Edmonton in late October. A native of Brooklyn, New York, he is credited with innovations in organic chemistry, including an "elegant but simple" method commonly used for the transformation of alcohols into halides.

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Calgary Foothills, 1989
Oil on Canvas/45 x 62 cm

Pam Wilman, '84 BFA

Edmonton artist Pam Wilman describes herself as an "outdoor person." Her outdoor interests include triathlon training, ski mountaineering, ski racing . . . and painting.

Wilman admits that painting outdoors can be a challenge — "getting your equipment to where you want it, dealing with elements of weather and

bugs, people bothering you"—but for her the bigger adventure is facing the canvas and struggling to find the right vocabulary in the paint to express her reaction to the landscape.

While the Montreal-born artist has always approached landscape as a vehicle for expression, the expression has taken on new dimensions in the past year or two: since returning to Edmonton from California, where she spent three years, she has been using her painting as a means of working through the emotions associated with loss in her own life.

The third pillar (along with sports and painting) of Wilman's life is teaching. As

a teenager she taught swimming in Edmonton, and while she was in California she earned teaching credentials and taught art education to more than 1,000 children from kindergarten to grade six, including Spanish bilingual classes and special education students. (Her résumé divulges that she speaks "Basic French, German, Spanish and Computers.")

Since returning to Edmonton she has obtained her Alberta interim teaching certificate, designed individual educational programs for students at the Sylvan Learning Centre in Edmonton, and joined the instructional staff of the U of A Faculty of Extension.

Her own art education includes, in addition to her BFA degree, three Emma Lake Artists' Workshops and a session at the Yale Summer School of Music and Art, which she attended in 1983 on an Ellen Battell Stoeckel Fellowship.

Wilman has had her work featured in exhibits in Los Angeles; Vancouver; Scottsdale, Arizona; Norfolk, Connecticut; and Edmonton. Her paintings are included in numerous private and public collections, including the Westburne Collection, Montreal and those of the Alberta Art Foundation and the Mackenzie Health Sciences Centre.

She is represented by the Front Gallery in Edmonton.



In the summer of 1989 six University of Alberta students took to canoes to retrace a historic fur trade route and found it more than a challenge.

Text and photographs by Naomi McIlwraith, '89 BPE

Explorations: A Personal Journey



Tuesday, May 23, 1989, Day 25 Today was a dig in and grunt kind of a day . . . pretty much pulled hard all day. We paddled till 7:30 this evening and covered only 45 km. Though the

hours seemed to go by with relative ease the miles didn't. We all paddled hard today and the low mileage is disappointing.

We're camped in a less than ideal spot about 27 km upstream of Nipawin. We're tucked into a teeny weeny spot that's kind of lumpity bumpity. The banks on both sides of the river are steep and not conducive to good tenting. We have managed to make a somewhat cosy home for the night, though.

Sometime soon after getting on the water today the Saskatchewan lost its characteristics of being a river. It has widened out so that our guesstimate is that it is at least a km wide. Where we are camped the water is not flowing by the shore like a river. Instead it is lapping at the sides like a lake. In fact the Saskatchewan River is more characteristic of a large northern lake. At

some places on our float breaks when we were rafted up we either didn't go anywhere or we were actually pushed upstream. That is how slowly the river is moving. There was a wind and it would seem that the upstream force of the wind was equal to or a little greater than the downstream force of the water.

One of the more recognizable features is the steep clay banks. However, they aren't continuous nor are they restricted to the outside curves as there are few to no curves. Rather the clay banks are present as outcropping or bulges as the shoreline bulges in and out. The out-bulges are the clay banks while the in-bulges are where the water collects in pools as in a lake (points and inlets).

The terrain in these parts is much less friendly than it has been. It is much more rugged and we are no longer assured of a farmer's property and house within 5 km of shore should an emergency occur. The wildlife, although a treat, has in my view increased the bear hazard. The weather has been very cool in the last 2 days, reminding



Right : A makeshift sail provides paddler Bruce Zawalsky with a moment's relaxation on the river.

us that we are in Northern Saskatchewan. My big toe (the one I broke when I was 14) hurts and that could be an ominous warning of snow.

There wasn't much talk on the river today. We just paddled our little old hearts out. Once we had settled into camp and I had made split pea soup for din-din we were somewhat more gregarious.

As I write, I hear the slap of a beaver's tail. We have decided that since there has been a beaver at most of the sites we've camped at so far it is because Harvey (Scott) has sent along a beaver to check things out, to keep tabs on our whereabouts and on our activities. The beaver will slap around a bit and then go away to call Harvey long-distance on the telephone.

Earlier this afternoon there were literally hundreds and hundreds of Common and Black Terns flying overhead. They are very streamlined birds with much finesse as they continuously flit about and dive at sharp angles towards the water to catch insects.

As we paddled into camp tonight we were welcomed by the drone of at least 5,000



mosquitoes (Cheryl's count). It's kind of scary to hear them but to not be able to see them right away. Jacqueline says they don't start biting until they're past the larval stage. We must prepare our minds and bodies for the onslaught. I wonder, could it be a question of mind over matter?

As I reflect back on the events of last summer I marvel at the things I didn't know then and what I know now. It may not be that I know a whole lot more now—I guess it's *what* I now know. (Including the fact that there is a hydro dam that had been completed four or five years ago and wasn't on our topographic maps dated 1976—thus the lake-like characteristics of the Saskatchewan River upstream of Nipawin.)

When I made my journal entry of 23 May, we were less than halfway to our destination on our canoe expedition from Rocky Mountain House, Alberta to Thunder Bay, Ontario. We left Rocky on 29 April 1989 and arrived at Old Fort William near Thunder

Bay on 27 July 1989—89 days of paddling and portage. The six of us, four physical education and two recreation students from the University of Alberta, knew it would be a hard journey. We just didn't know how hard it would be. Nor did we know how rewarding it would be.

As members of Explorations '89, a senior outdoor education/recreation leadership program in the Faculty of Physical Education and Recreation, we had been working for over 18 months on the logistics of this expedition to retrace a historic fur trade route from West to East. Now here we were, living out our dream, making it a reality and experiencing the voyageur's life (complete with mosquitoes) along the route travelled by the likes of Samuel Hearne, Anthony Henday, David Thompson, Pierre de La Vérendrye and Peter Fidler.

That these were real people we were reminded when we met one of Fidler's descendants. At the forks of the North and South Saskatchewan Rivers east of Prince Albert, we talked with Ray C. Fiddler who, despite the slight difference in spelling of his surname, turned out to be the great-great-great-grandson of the pioneer map-maker and explorer, who at one time served as the Hudson's Bay Company's chief surveyor. In 1789 Peter Fidler, working for the Bay, was the first white man to map the Saskatchewan River. Ray told us that he was descended from Peter's marriage to a Cree woman from the Red River area.

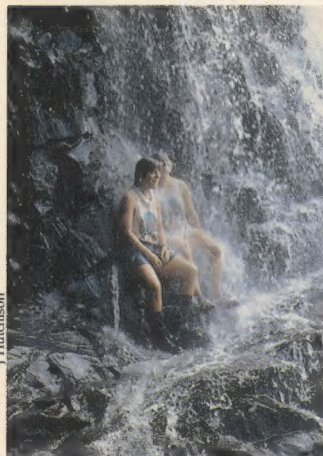
For me—and I think I am fairly safe in speaking for the other Explorations crew members—our retracing of the historic fur trade route was an experience of a lifetime, one that brought about profound and deep rooted transitions in our way of looking at our world. And, I suppose, that's what Explorations is all about. It is a senior program, student-directed, with a strong emphasis on leadership in the wilderness context. It was up to us, the student participants in Explorations '89, to decide which historic, environmental or cultural endeav-



'Our retracing of the historic fur trade route was an experience of a lifetime, one that brought about profound and deep rooted transitions in our way of looking at our world.'

Above Left: The author in training prior to the trip.

Left: Igor, the group's amphibious mascot, oversees the preparation of a special meal.



J. Hutchison

'...having faced the risk, the person who I was before Explorations is very different from the person I am now.'

or we wanted to undertake. No longer were we to be spoon-fed by professors, instructors or the system. It was our ball game, and whatever happened we were to be responsible for it.

In the early stages when I first considered doing Explorations, and certainly when the idea of paddling so far was first conceived, it seemed like a challenge, a dream to be sought. Now, these months later, having graduated and put together a slide/video presentation based on the trip, I look back and am beginning to realize that it was more than a challenge to me. It has an importance in my life that is second only to having been born and lived the first 20 years of my life at home: being a member of Explorations and doing the trip from Rocky to Thunder Bay was a call for me to respond to something unknown. Before I began the trip I had just begun to recognize myself as a person with leadership skills to offer; immersing myself into so many unknowns was a risk extending not only to my confidence as a leader but to the very foundation of who I was. And having faced the risk, the person who I was before Explorations is very different from the person I am now.

It is cooperation that makes peer leadership work, and as outdoor leaders we learned to work together. Working together in the early stages of planning and setting goals, studying group process and basic communication skills with the help of Pro-

fessor Lou Lanier, Chris Edgelow and Don Burry. Working together in the late stages also, including the dreadful 14-kilometre Grande Portage which, by the time we had finished, had extended into 42 kilometres and two days of hauling ourselves, our boats and three months of gear over trail, rocks, roots, swamp, ruts and quagmire. It is really amazing what you can do when the situation leaves you no choice or you want to bad enough.

Paddling to Thunder Bay/Old Fort William was something we all wanted to do. BAD. When we left Rocky Mountain House at the end of April it was still very early in the season and though the river was flowing there were still gigantic blocks of ice along the shoreline. They would occasionally go crashing into the river to scare the living tar out of us.

The days were long, the weather invariably extreme, and we went for long stretches at a time without seeing human beings other than ourselves. As showers were a rare luxury it wasn't long before we were actually fitting the bill of the "Dirty Half Dozen" as we had so accurately been dubbed by our professor, Harvey Scott.

We experienced many ups and downs, highs and lows, along the way. Lows resulting from fatigue, from incessant attacks by mosquitoes, black flies and horseflies, from pulp mill sewage spewing into the water, from cold in April and May or extreme



Above: A waterfall provides an invigorating shower for Cheryl Hunt and the author.

Right: Clearing the way on the Pigeon River 30 km upstream of Lake Superior.

heat in late June and July, from having to doff and don our rain gear five or six times on some days. Highs were brought about by the sharing circles which Bruce often initiated, by witnessing nature's inexpressible beauty such as was expressed in the sunsets or the tranquillity of the numerous islands of Lake of the Woods, and by meeting the awe-inspiring Canadians (and an American or two) along the way.

Early in the trip many of the people we met greeted us with scepticism. My journal records a typical encounter: "... as we passed by Fort Saskatchewan and Redwater there were several different groups of people sitting on shore, fishing or just walking. One group of young guys said, 'Where are you going?' I called out, 'Thunder Bay.' They laughed and said 'Good luck!' in disbelief. A few hours later, the same thing. 'How far are you going?' 'Thunder Bay.' 'Yeah right, ha, ha.'" We were as amused by their disbelief as they were by our craziness.

As time went on, however, we were more warmly received. My memories include coffee and carrot cake with the Smits near Nipawin, Saskatchewan; the Lais in The Pas, Manitoba; the Berthelettes at Grand Rapids, Manitoba; Bernadette at Pointe du Bois on the Winnipeg River, the Brinkmans at Kenora and on their island on Lake of the Woods; and a host of others who contributed to our experience and our dream in most generous ways.

I have a particularly vivid memory of a most intriguing lady we encountered during a break from paddling in the Boundary Waters Canoe Area in northern Minnesota. She was still very much in my mind when I took up my journal later that day:



Friday, July 21, 1989, Day 84 "At Gunflint we went into the main lodge to get cold pop. As we went in the door there was a dark-skinned woman of about 35, with long black hair with grey streaks in it, sitting on the veranda taking notes from a book. She was drinking a can of Miller Beer and seemed fairly relaxed. When we came out to sit on the veranda she continued writing for a time. Cheryl was sharing a bag of corn chips with us and offered the woman some. She looked up from her writing and helped herself as if she'd known Cheryl for some time. Soon she was listening to our story with interest. We found out that she guides family canoe outings of 3-4 days from Gunflint Lodge. She had quite a southern accent. As well, she runs a canoe tripping company in Colorado called Centennial Canoes. Originally though, she's a Cajun from Louisiana. That and her other Sicilian half explained her dark complexion and

beauty.

It was interesting talking to her because of our common interest. In the way she was dressed, her manners and lifestyle she could have been a displaced hippy from the '70s. When we told her about our 3 month canoe expedition she didn't "Oh, wow!" us like a lot of people do. She seemed to understand that it's not totally glamorous and nostalgic; that there are as many tough times as there are fun times. As well, she had some insight into the human dynamic involved. She didn't tell us her name at first, but earlier on in the conversation someone from inside called out asking if there was a Diane out on the veranda because there was a phone call, and she had responded.

Our interchange with this lady was neat and as is so often the case with travel, short and intense. I shook her hand as we got up to leave and quickly told her all our names. One of the last things she said to us was, "It was nice talking to y'all; it's kinda like an exchange of energies."

The physical challenges met their height and ended with the Grande Portage. When we reached the town of Grande Portage, Minnesota and Lake Superior we had walked 42 kilometres and were glad to be done.



Wednesday, July 26, 1989, Day 89 We are all terribly dirty. We haven't washed in over 2 days because of our shortage of water. From all of the hard physical work of the portage the grime is a greasy film of sweat, muskol, rain and mud over our bodies. Showers at the Grande Portage Lodge are a dollar a body and I look forward to feeling like a woman and a human being again tomorrow.

A short stay in Thunder Bay at Bruce's grandmother's home and eating her delicious food after three months of mostly dehydrated meals, a visit to Old Fort William and the Terry Fox Monument and soon we were on the train headed west and home to Edmonton.

The trip is over now and life goes on. It is too ordinary, and I dream about my next venture. But for now, the summer of '89 is still very close, the memory fresh in my mind and I can still share the stories which haven't yet grown too old to tell.

My co-paddlers, Carmen Ditzler, Cheryl Hunt, Jacqueline Hutchison, Kris Mattern and Bruce Zawalsky, also go on with their lives where the path leads them at school or at work. But I suspect that, like me, they won't follow the path too long before they start to wander, their curiosity getting the best of them and their dreams too real to ignore. ■

'The trip is over now and life goes on. It is too ordinary, and I dream about my next venture. But for now the summer of '89 is still very close . . .'

Weekend Events Set to Go

How long has it been since you graduated? How long since you last visited campus? Whether you are a member of a graduating class celebrating a special anniversary this year or would simply like to reinvigorate your ties to your alma mater, Reunion Weekend has something to offer you.

All the events for Reunion Weekend '90, scheduled for 21-23 September, have been confirmed. Now its up to graduates to mark their calendars and organize their

schedules so that they don't miss out on the activities. Among the special classes for Reunion Weekend '90 are the 1930 (Diamond), 1940 (Gold), 1965 (Silver) and 1970 classes. Graduates from these special years are invited to contact the Alumni Office for further details.

Reunion Weekend '90 kicks off on 21 September with an opening reception at the Faculty Club for the 1922 to 1950 classes. That same evening, graduates from 1951 to 1989 are invited to attend the second "Grazing Party" (the first was held last year) featuring a lively atmosphere

and fantastic food. These events truly offer "something for everyone".

The following morning begins with breakfast at Campus Earl's followed by tours of campus. Alumni and friends can then decide which of the stimulating presentations of "Super Saturday" they would like to attend. Lasting just 50 minutes each and presented by some of our best known professors, the Super Saturday lectures feature topics such as the occult, black holes, Gorbachev's (new) USSR and forensic anthropology.

After fortifying themselves by enjoying the Homecoming Luncheon at the Faculty Club grads can head back to Super Saturday or make their way to the Faculty of Arts Drop-In Centre hosted by Dean Patricia Clements. Later its time to wind up the day at the weekend's most popular event, the Dinner and Dance, featuring noted humorist Dr Mervyn Huston and dancing to the old time sounds of the Golden Altos.

Check the reunion listing located elsewhere in this *New Trail* to see if your class is planning a reunion. If one doesn't appear to be in the works, contact the Alumni Office for assistance in getting planning underway.

Call for Nominations

Alumni Golden Jubilee Award

Selection of the 1990 winner of the *Alumni Golden Jubilee Award*, the Alumni Association's most prestigious award, will take place in July.

This award was initiated in 1958 to honor individuals who have brought recognition to the University of Alberta. Any individual who has distinguished herself or himself through personal or professional accomplishment and has contributed directly or indirectly to the welfare of the University may be nominated. The nominee need not be a graduate of the University.

All nominations must be made in writing and be accompanied by statements in support of the nomination. The deadline for receipt of nominations is 29 June 1990.

Please forward all nominations to:

Chair, Awards Committee
Alumni Association
430 Athabasca Hall
University of Alberta
Edmonton T6G 2E8

1990 Class Reunions

The Alumni Association is happy to assist individual classes in organizing special events during the homecoming activities of Reunion Weekend '90 (September 21-23, 1990) or reunions at other times. The following classes are currently planning reunions for the coming year:

CLASS/PLACE/DATE/CONTACT

'30 Graduating Class ** Edmonton/Reunion Weekend/Alumni Office
'36 Medicine Edmonton/September 27-29/F Elliott & M Dolgoy
'40 Graduating Class ** Edmonton/Reunion Weekend/Alumni Office
'40 Dentistry Kananaskis/June 10-12/O Wright
'40 Engineering Edmonton/Reunion Weekend/Leslie Brown
'40 Medicine Edmonton/October 11-13/A Gander
'44 Agriculture Edmonton/July 19-22/Bill Andrew
'50 Agriculture Edmonton/July 19-22/Joe Gurba
'50 Medicine Edmonton/October 11-13
'65 Graduating Class ** Edmonton/Reunion Weekend/Alumni Office
'65 Dentistry Kananaskis/June 10-12/E McIntyre
'65 Civil Engineering Edmonton/Reunion Weekend/Bill Hibbard
'65 Medicine Edmonton/Sept 27-29/G Gokiert & C Harley
'65 Sept Dipl Nursing Edmonton/August 3-5/M Kreamer & J Jorgensen
'65 Pharmacy Kananaskis/June 7-9/Skip Gibson
'65 Students' Union Edmonton/Reunion Weekend/Francis Saville
'65 SU Promotions Ctee Edmonton/Reunion Weekend/David Cragg
'70 Graduating Class ** Edmonton/Reunion Weekend/Alumni Office
'70 Law Edmonton/October 12-13/Marguerite Trussler
'70 Medicine Jasper/June 28-July 1/Marshall Hunter
'72 BSc Nursing Gull Lake/July 21-22/Maureen Gustafson
'75 Dentistry Ashcroft, BC/June 9-10/Frank Van Gyn
'75 Medicine Okanagan/Summer 1990/L Mandreck
'75 BSc Nursing Edmonton/July 13-15/Shianne Letourneau
'80 Civil Engineering Edmonton/April 28-29/Murray Johnson
'80 Electrical Engineering Edmonton/Reunion Weekend/John Howard
'80 Law Edmonton/Reunion Weekend/Kerry Day
'80 Speech & Audiology Edmonton/Reunion Weekend/Frances Walsh
'80 Medicine Kananaskis/June 29-July 1/B Guspie & B Ward
'80 Pharmacy Edmonton/June 15-17/Karen Smilski
'85 MBA/MPM Edmonton/September 1-2/T Cisakowski & D Crozier
ALL Jubilaires Edmonton/Reunion Weekend/David Norwood

Some locations and dates are tentative. Should you require information about the reunions noted, or if you wish to organize a reunion for a class not listed, please contact Sandra Kereliuk in the Office of Alumni Affairs.

** The 1930, 1940, 1965 and 1970 classes are the special classes at Reunion Weekend '90.

RENEWAL NOTICE

If you haven't already sent in your payment for your Faculty's constituent alumni society, consider joining by sending in your dues today.

Business Alumni Association	\$35 (1989-90)
Education Alumni Association	\$25 (1989-90)
Library & Information Studies AA	\$25 (1989-90)
Native Alumni Association	\$25 (1989-90)
Nursing Alumni Association	\$20 (1989-90)
Pharmacy Alumni Association	\$20 (1989-90)

Drama Alumni Association	\$25 (1990-91)
Forestry Alumni Association	\$15 (1990-91)

Send your cheque (payable to the society) to:

Office of Alumni Affairs
430 Athabasca Hall
University of Alberta
Edmonton, Alberta T6G 2E8

Please indicate your graduating year and degree.

Coordinator Sought

The U of A Alumni Association, in conjunction with the International Centre on campus, is looking for an alumnus to volunteer his or her time to assist in the coordination of the Host Family Program.

The Host Family program attempts to match students and local alumni families in an effort to introduce foreign students to a warm, inviting environment and promote cross-cultural sharing of information and experiences.

The volunteer alumni coordinator will assist staff of

the Alumni Office and the International Centre in providing orientation sessions for both families and students, conducting interviews and matching families with students. An enthusiastic alumnus is being sought for this volunteer position.

The hours of work can be set to accommodate an individual's schedule and work space and materials will be provided. Although the volunteer will receive training from University staff before beginning duties, an individual with prior training or experience in the area of volunteer management would be preferred.

If you are interested in this position, or would like further information, please contact Sandra Kereliuk in the Alumni Office at 492-3224.

President Visits Alumni

The new president of the University of Alberta is getting to meet alumni and looks forward to meeting more in the future.

In addition to the alumni he has met on campus and in Edmonton, Dr Davenport met with U of A alumni on a visit to the Toronto Branch in late October. Circled on his calendar for this spring are

speaking engagements at Alumni Association branches in Montreal, Vancouver, Victoria and Grande Prairie.

While arrangements are not yet finalized, he hopes to visit graduates living in Calgary, Ottawa, Lethbridge, Medicine Hat and Kelowna, B.C. in the fall. He's also looking forward to visiting some international branches when possible.

Dr Davenport is also meeting alumni through the Association's constituent groups. At present he is scheduled to speak to the Education Alumni Association this spring, and even before he took office he met with the Business Alumni Association.

Association Calendar

Branches

■ Vancouver, B.C.

8 April 1990 Spring Brunch and Annual Meeting
Royal Vancouver Yacht Club / 12 noon
Speaker: Dr Paul Davenport / \$16.50 per person
RSVP by 2 April: Lois Hunter, 530-1840

■ Victoria, B.C.

22 April 1990 Annual Meeting and Luncheon
St. Michael University School Racquet Club / 11:30 a.m.
Speaker: Dr Paul Davenport / \$10 per person
RSVP by 10 April: Art Webb, 721-1273

■ Grande Prairie, Alberta

27 April 1990 Annual Dinner
Grande Prairie Inn / 6:30 p.m.
Speaker: Dr. Paul Davenport
RSVP by 23 April: Irene Nicolson, 539-2005 (b)

■ Maryland, Virginia and Washington, D.C.

28 April 1990 All Canadian Universities Dinner
Quality Hotel Capitol Hill / 6:00 p.m.
Hosted by McMaster University / \$20 per person
RSVP by 23 April: Jean Colburn, (301) 258-0820

■ Chicago, Illinois

4 May 1990 All Canadian Universities Dinner
University Club of Chicago / 5:30 p.m.
Hosted by U of Manitoba / \$35 per person
RSVP by 27 April: Libbie Kolt Hagan
608s Kensington Ave, La Grange, IL 60525

■ Toronto, Ontario

27 May 1990 Family Picnic
Tanner Farm / 2:00 p.m.
\$5 Adults; \$2 children
RSVP by 22 May: Robert Morrice 421-3346

Constituent Groups

For information about the activities of the Association's constituent groups, contact Ms Barbara Chaffey at 492-4523.

■ Business Alumni Association

26 April 1990 Annual Banquet
Westin Hotel Edmonton / 6:00 p.m.
Speaker: R Walker, Peat Marwick Thorne / \$35 members
RSVP by 20 April: B Chaffey, 492-4523

3 May 1990 Evening Seminar
"Issues in Executive Compensation"
Dr K Stratton-Devine / free to BAA members
RSVP (yes only) by April 30: B Chaffey, 492-4523

24 May 1990 Annual General Meeting
Stollery Centre, U of A / 5:30 p.m.
RSVP by 18 May: B Chaffey, 492-4523

■ Dental Alumni Association

10 June 1990 Wine and Cheese Reception
Kananaskis Lodge / 6:00 p.m.
Complimentary In conjunction with the ADA Conference

■ Education Alumni Association

31 May 1990 Annual General Meeting
4-110C Education N, U of A / 6:30 p.m.
RSVP by 28 May: B Chaffey, 492-4523

■ Library and Information Studies Alumni Association

4 May 1990 Reception and Annual Meeting
Jasper Park Lodge (in conjunction with LAA Conference)
RSVP For more information: Kit Wilson, 492-1463

■ Nursing Alumni Association

11 June 1990 Pre-Convocation Breakfast
Edmonton Petroleum Club / 8:00 a.m.
\$10 per person
RSVP by 4 June: B Chaffey, 492-4523

A Window on Alberta

Alberta: Studies in the Arts and Sciences wasn't their idea, but it was an idea that Dick Harrison and John Foster warmly welcomed.

In fact the two University of Alberta professors were so supportive of the concept of a journal bringing together a variety of scholarship related to Alberta that they agreed to set aside some of their other scholarly pursuits to serve as its co-editors.

The gritty reality of *Badlands*, the fantasyland of West Edmonton Mall, rats "good and bad" and the "genuine culture" of the Beverly Crest tavern—these are some of the strands of the provincial fabric which *Alberta* has followed in its first three issues. While the publication, printed twice yearly, is in many respects much like a traditional scholarly journal—all submissions are refereed, for instance, and most have footnotes and bibliographies—there are important differences. These include a continuing emphasis on actively promoting the interdisciplinary nature of the publication and expanding its base of contributors.

The journal is not intended only for scholars, but for all who have a serious interest in the province. The co-editors describe *Alberta* as a medium for "a sharing of ideas—and a more coherent view of the Province." While preserving the scholarly context, they emphasize accessibility. The book-sized journal features colorful covers and full-color illustrations and contributors have to forego the specialized language of their disciplines.

The journal also serves as a window on what is being written about Alberta. It includes book reviews of important current publications and an annual list of books about Alberta.

The idea for *Alberta: Studies in the Arts and Sciences* came from Alberta Culture and



Multiculturalism's historic resources division and the journal was made possible by a contractual arrangement between Alberta Culture and the University, which is contributing the publishing support and expertise of the University of Alberta Press. (The agreement is for an initial three-year period.)

Once the groundwork had been laid for the journal, Harrison, a professor of English whose particular interest is Western Canadian literature (especially as it relates to the differences in development between the Canadian and American frontiers) was approached to serve as its editor.

"It wasn't something I would have thought of doing," recalls the English professor. But he believed that the journal ought to be done, and he had some ideas about *how* it ought to be done, so he agreed to help out—on the condition that Foster, who teaches in the history department, would agree to serve as co-editor.

For Foster, a specialist in Western Canadian pre-settlement history, the journal represented a challenge to take some substantive action regarding some views he holds. "For some time I have been aware that a weakness of most of us doing research in the university environment is that we don't communicate effectively with people at the grass roots level," he says. He also expresses the view that scholarship is often

perceived too narrowly. Co-editors Harrison (left) and Foster with copies of their new journal.

perceived too narrowly.

Scholarship, he says, is not exclusively the domain of academics: "Not all scholars are in a university setting—there are people in government and in private industry who are doing similar things to people in universities but are not used to seeing themselves as scholars.

Alberta as it has taken shape under Harrison and Foster's editorship reflects the professors' concern with "breaking down barriers"—not only those between academe and the grass roots, but also those between disciplinary boxes.

The journal is "actively multidisciplinary" says Harrison—which, he explains is another way of saying that he and Foster actively seek out contributors of varying backgrounds and "drag them together" to provide different perspectives on topics of common interest. This dragging-together has been facilitated by focus issues. The journal began with a theme issue centring on the Tyrrell Museum of Palaeontology at Drumheller, and the decision was made that one of the two issues published each year would be a theme issue.

(The buffalo will be the focus for the next theme issue; future issues will concentrate on such topics as Alberta and the North,

Alberta and the United States, gender issues in the province, and religion in Alberta. Contributions or suggestions related to any of these themes are invited.)

The Tyrrell issue illustrates the scope possible within a particular focus. Articles range from a historical piece on Alberta's first fossil hunters—the Native people—and items describing the architecture of the museum and its economic impact to a discussion of the literary badlands of Robert Kroetsch and a piece on sculpting dinosaurs.

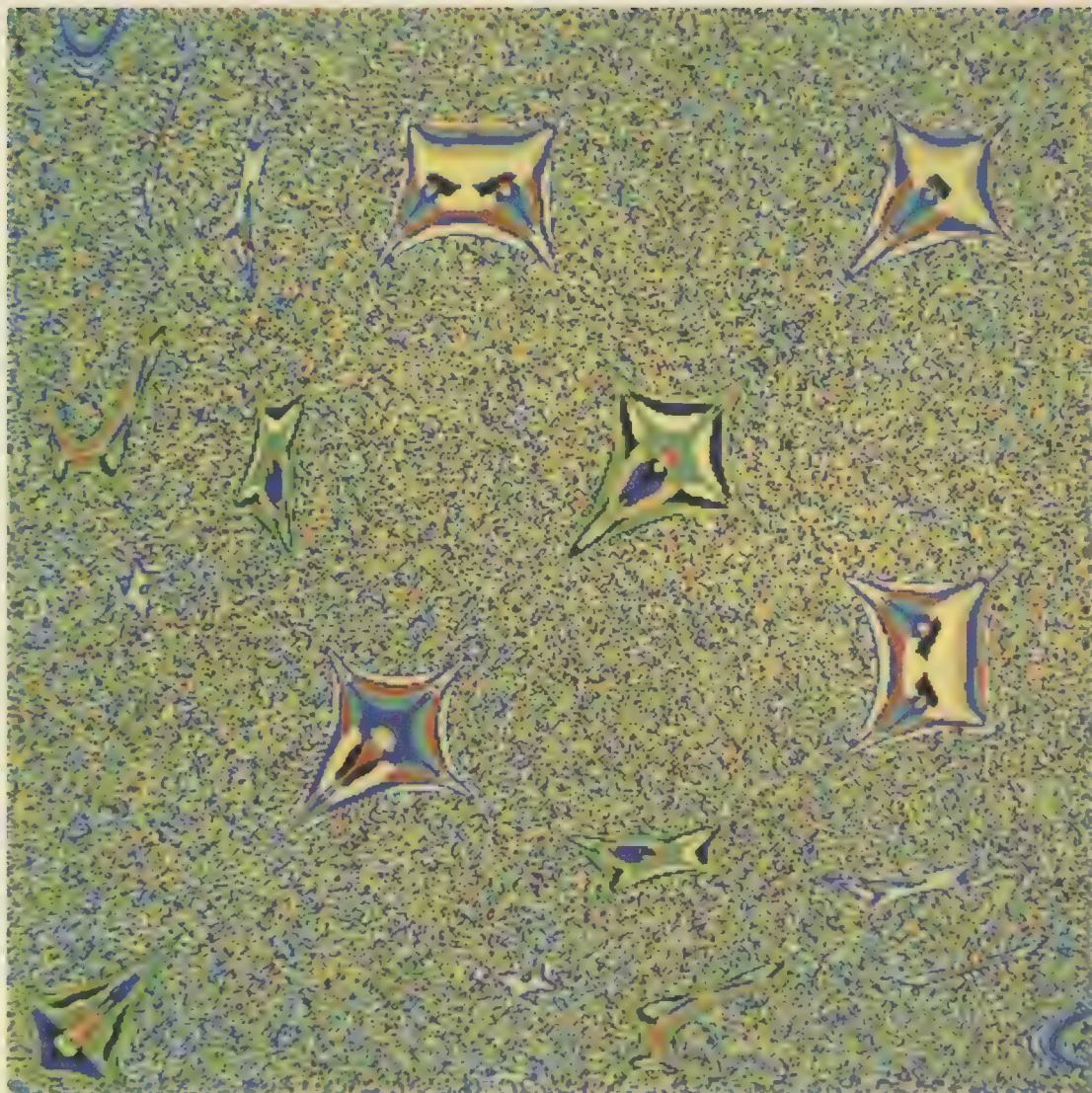
The 1989 theme issue, "Popular Culture," offered even more scope. Among the offerings were a historic look at Alberta cartoonists, a history of the Banff School, a look at supermarket tabloids, a piece on West Edmonton Mall, a none-too-sympathetic view of Edmonton's choice of a city flower and an investigation of the two images of the Ukrainian pioneer women. Also included was a provocative opinion piece on "Alberta's Genuine Culture" (the kind to be sampled at Edmonton's Beverly Crest Hotel tavern) by journalist Ted Byfield and a response by Glenn Buick from Alberta Culture and Multiculturalism.

The introduction of commentary is another attempt at breaking down barriers to make *Alberta* more accessible—and therefore more valuable—than a more traditional research journal.

"We hope that the idea of dialogue will catch on, allowing us to explore more of the genuinely shared concerns of Albertans," says Harrison. "The whole idea is to get people speaking to each other."

Subscriptions to Alberta: Studies in the Arts and Sciences (\$12 per year for individuals; \$18 for institutions) can be purchased from the University of Alberta Press, 141 Athabasca Hall, Edmonton T6G 2E8. Single copies are also available for \$10 each.

Work being done at the University of Alberta is contributing to the new science that is providing fascinating glimpses of order underlying the seemingly chaotic.



By Rick Pilger

Images of Chaos

Above: The images arising from Dr Thomas Rogers' work in nonlinear dynamics stir the imagination. This graphic, one of a series from his work describing cooperating systems, seem to contain tiny human figures—math professors wearing different colored sweaters, suggests Dr Rogers.

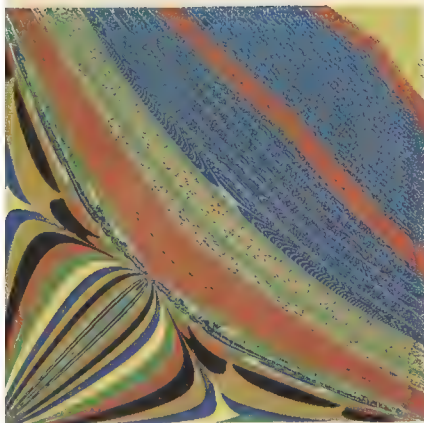
When the room lights are dimmed the assorted teaching staff, graduate students and others gathered for the Computing Science Colloquium are treated to some extraordinary images.

In the semi-dark the screen at the front of the General Services Building classroom comes alive with remarkable mosaics of color: seas of patterns and patterns within patterns. The images are variations on a theme, but each is alive with its own particularity.

Addressing the group is the man whose

work underlies the images, mathematician Thomas Rogers, a specialist in nonlinear dynamics, the mathematical description of the "new science" that came into its own in the 1980s, the science known as chaos.

In the buoyancy of the late 1950s and early 1960s western nations began turning scientific attention in a rather massive way towards one of the oldest of human preoccupations: predicting the weather. The power of the atom had been exploited by human will and there was a great deal of confidence that with similar effort and the help of the



The history of the development of chaos theory is intertwined with wondrous images ripe with the promise of insight into the secrets of nature.

powerful new tool available—the computer—another of nature’s codes would be broken. Weather, for all its vagaries, might soon read as an open book. And perhaps that book could be edited.

At the heart of this optimism was a clockwork view of the world, in keeping with the orderly universe of Newton in which things happen in a predictable way. Although nobody discussed it much, there was an underlying precept taken for granted: slight differences in initial conditions would not significantly effect later results. Close enough would be good enough. Just as two similar pots of water at close to the same initial temperature would always end up at about the same temperature when heated equally, it was expected that very similar initial weather conditions would naturally lead to very similar later conditions.

It wasn’t to prove that simple. The critical importance of initial conditions is now recognized and the realization that very similar conditions can give rise to very dissimilar behavior has become one of the cornerstones of the science of chaos.

The epiphany of this realization occurred in the winter of 1961 in the office of a Massachusetts Institute of Technology meteorologist, Edward Lorenz. Using an early computer (one which almost filled his entire office) Lorenz had programmed a simple model for the weather using only 12 variables—winds, temperatures, atmospheric pressures and so on. While he had no high hopes for the model, Lorenz was intrigued by the ever changing daily weather patterns it generated.

Then on that one day something amazing happened. Wishing to repeat a portion of a run which had been plotted, Lorenz decided to take a shortcut. Instead of starting the run from the beginning, he backed up to a mid-point, entered the values shown at that point and started the run over. When next he looked he was surprised to find that the graph being traced was diverging wildly from the original. Eventually, Lorenz was to discover that the vastly different weather conditions shown by the two graphs had resulted because in entering the mid-point variables he had, in effect, rounded them from six decimal points to three—trifling differences had had major consequences.

(Mathematicians speak of this as “sensitive dependence to initial conditions” which may sound abstruse at first but it is simply what we acknowledge when we speak about “the straw that broke the camel’s back” or observe that “for want of a nail the shoe was lost; for want of a shoe the



horse was lost . . .”)

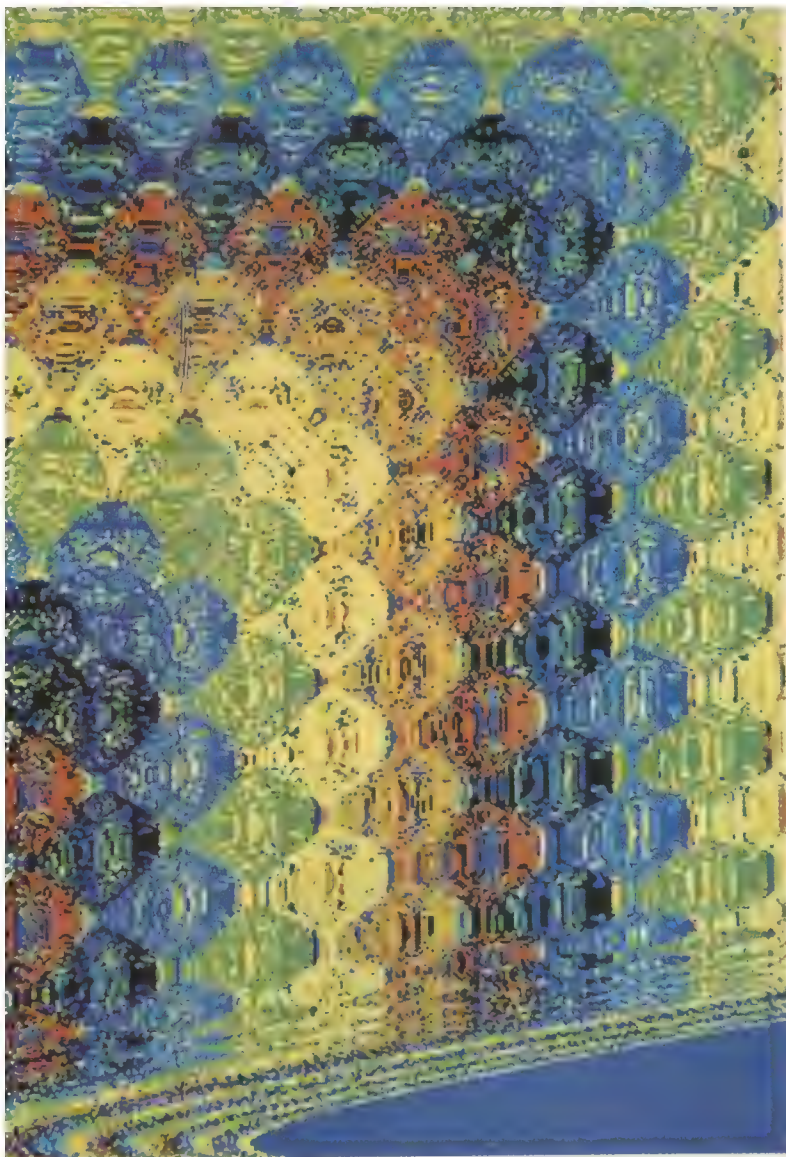
Having investigated this chance revelation further Lorenz gave up any hope that he might have had for accurate long-range weather forecasting. It would never be possible to measure the conditions at any time accurately enough: after all, the flapping of a single butterfly’s wings could make a difference in global weather patterns (the so-called “butterfly effect”). But Lorenz didn’t leave it at that, and further analysis showed that behind the unpredictability of the weather there lurked a strange kind of order.

When he graphed his results in a certain way, Lorenz found that while the weather might go almost anywhere (within certain bounds) from any given starting point, over time it behaved as if it was being attracted to two connected looping portions of the graph. (Today mathematicians investigating nonlinear dynamical systems speak of “strange attractors” — “strange” because the system does not resolve itself to a state of equilibrium or periodicity.) In the shadow of its day-to-day and year-to-year va-

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garies the weather seemed to be marching with tantalizing regularity to a well-remembered refrain.

It is this order within disorder that is at the heart of the science of chaos. And with the advent of the computer, scientists and mathematicians, largely working in the isolation of their various disciplines, began getting glimpses of the order behind the seemingly chaotic—the turbulence in fluids, fluctuating insect populations, the occurrence of health epidemics, rising and falling commodity prices . . . even the pattern of drops from a dripping faucet.

A retrospective look at the new science would have to include the names of numerous individuals. Among them would be Stephen Smale, the Berkeley mathematician whose intuitive work in explaining dynamical systems is credited with turning a whole branch of mathematics back toward the real world; James Yorke, the University of Maryland mathematician who connected the work of Lorenz and Smale and contributed a name for the new science with the mischievous title of his paper "Period

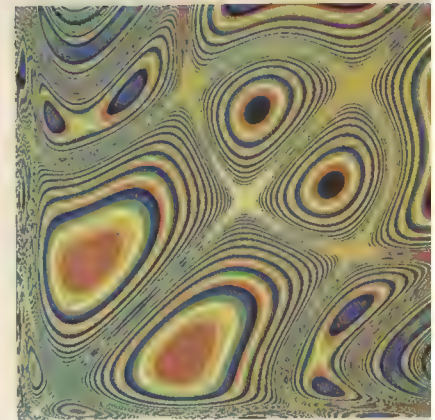
Three Implies Chaos;" Robert May, the Australian-born Princeton University biologist whose background in theoretical physics enabled him to see the importance of mathematical patterns other biologists had dismissed as numerical oddities; Benoit Mandelbrot of IBM's Pure Research Laboratory who coined the term "fractal" and whose concept of "fractal dimension" provided a way of measuring qualities that would otherwise have no clear definition; and Robert Shaw, leader of a pioneering group at the University of California Santa Cruz, whose paper on a dripping faucet is one of the classics of the new science.

(Many of the graphic representations of chaotic systems have fractal attributes. A fractal has been described as a way of seeing infinity. It is a geometric shape with the quality of self-similarity built in. It is, therefore, just as irregular at whatever scale it is examined. A simple example would be an equilateral triangle that has smaller equilateral triangles attached to the centre third of each edge; these smaller triangles have even smaller triangles similarly attached to their outer edges; which again have smaller triangles attached and so on, *ad infinitum*.)

Another individual occupying a pivotal point in the history of chaos is Mitchell Feigenbaum. His remarkable discovery in 1974 gave the new science a coherence it had previously lacked.

Feigenbaum was a brilliant young physicist who had been attracted to the Theoretical Division of the U.S. National Laboratory at Los Alamos, New Mexico in the early 1970s. Intrigued by the transition into chaos of seemingly orderly systems, he was analysing an equation that described the year-to-year fluctuations of an insect population when, much to his surprise, he discovered a mathematical constant associated with the way in which the system became chaotic. Fascinated, he subjected other non-linear equations to the same analysis to see if they too would yield constants. They did and—surprise of surprises—it was invariably the same constant he had first uncovered.

These findings—that an identical manifestation of order was hidden in widely dissimilar systems that seemingly had no order—were so strange that Feigenbaum originally had trouble getting them published in mainstream scientific journals. However the "Feigenbaum numbers," as they came to be called, are now being employed to analyse and sometimes predict erratic behavior in systems as diverse as the commodities market and the heart's inter-



Far Left: Distinctive color bands highlight underlying order in this image deriving from Dr Rogers' mathematical investigation of competition.

Centre: This rich tapestry interwoven so colorfully plots the interaction of cooperating populations. The colors relate to how long it takes to reach the system's strange attractor (evident in the bottom left hand corner) from a given point.

Above: This very graphic image from the cooperation series is strangely reminiscent of primitive art.

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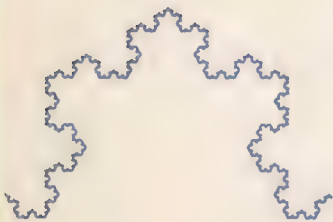
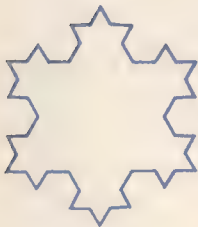
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Evolution of a fractal:

Construction of a Koch curve (bottom) begins with an equilateral triangle. To the middle of each side is added a similar triangle with sides one-third the length of those of the original. In a similar manner, smaller triangles are then added to each of the 12 sides of the new figure. This process repeated an infinite number of times gives a Koch curve, a figure bounded by an infinitely long line but containing a finite area (an area less than that of a circle drawn around the original triangle.) The Koch curve has the fractal characteristics of self similarity and complex detail at every scale.



nal electrical system. During the 1980s oceanographers, astronomers, entomologists, biologists, mathematicians, physicists, psychologists and researchers from a variety of other disciplines began digging out from the back corners of their filing cabinets problems that had been confined there by a linear world view and finding them fertile ground for the new science of chaos. An entire world view was changing.

Thomas Rogers, whose colorful images are the culmination of his address to the Computing Science Colloquium, is one of two University of Alberta mathematicians with a special interest in chaos. He and his departmental colleague Jim Muldowney are part of the scattered group of U of A researchers who have, to varying degrees, made nonlinear dynamics central to aspects of their work.

Muldowney, who describes himself as "a pure mathematician but with a preference for mathematics that arise in applications" (he admits to enjoying teaching engineers, for instance), says that although the advances in chaos theory have only recently made nonlinear dynamics a popular field of mathematics, it has been around for a long time. "The classic three-bodied problem in celestial mechanics—a problem that has not yet been solved; only approximate solutions are known—is a problem in chaos," he says.

Muldowney says that although he was aware of the rising interest in chaos theory, he first "sat up and paid attention" only a couple of years ago when he realized that

some mathematical techniques he had developed in a quite different context could readily be applied to chaos. Since then he has used these techniques, which have proven as effective as he had hoped, in determining the fractional dimension of strange attractors. This, he explains, is a first step to determining how complicated a problem might be—some equations that chaos theoreticians might wish to address prove to be so complicated that they are beyond the reach of even the most powerful supercomputers.

Rogers has had a longer interest in chaos: he came to it early, in the late '70s, his attention caught by Robert May, when he saw the nuclear-physicist-turned-biologist demonstrate how behavior that was very complicated could result from a simple equation. (This isn't what we intuitively expect; however the recognition that very simple systems can give rise to extremely complex behavior is one of the key understandings of chaos theory.)

"There is nothing basically mysterious about chaos theory," says Rogers. "Loosely defined, chaos is simply any kind of behavior which is bounded and yet goes to no equilibrium or periodic solution. If you think about it the only thing it could do is take a complicated trajectory, and that is precisely what happens."

Neither is it mysterious that nonlinear dynamics has been a neglected study until now, says Rogers. "The great achievement of science up to recent times has been the linear theory. All of the classic differential equations of physics are linear and their so-



lution spaces have certain linear properties—this includes the heat equation and the wave equation.

"Given the astonishing success of these theories, the lack of cheap and powerful computers and the complexity of the subject, it is no wonder that nonlinear dynamics has been relatively ignored."

In fact, according to Rogers, it is even hard to know where to begin when tackling a nonlinear problem: "One of the characteristics of chaos theory is that it is very difficult to know what you are even supposed to look at . . . it is difficult to know what kind of theorems you're supposed to prove until you do a good amount of numerical analysis."

Thus the importance of the computer. But a list of numbers on a computer print-out is useless in itself, says Rogers. "It is not only the small computer which has been important to mathematicians, but good graphics as well," he says.

Indeed, the history of the development of chaos theory is intertwined with wondrous images ripe with the promise of insight into the secrets of nature: Lorenz's attractor with its connecting loops, reminiscent of the mask of an owl; Mandelbrot's famous set; Philip Marcus's simulation of the red spot of Jupiter; a variety of images showing fractal clusters, some remarkably like snowflakes or frost on a windowpane.

To these can be added the slides which Rogers is showing to the Computing Science Colloquium. Fascinating in their own right with their complex patterns and fractal details, these images also reflect something of a mathematical *tour de force*.

The images arise from two separate studies Rogers initiated. The first, exploring a model for competition, was done in 1987 with the collaboration of graduate student Hong Jiang ('89 PhD); the second, which used a similar system but traced the results of cooperation, was done the following year with Wieslaw Krawcewicz, a new faculty member in the department.

Essentially, the mathematicians took two equal populations, starting with equal resources and modelled how each would thrive from generation to generation when asymmetry was introduced by different initial conditions and then by varying degrees of competition and cooperation. This might not sound so very difficult, but it required some very involved mathematics. In fact, says Dr. Rogers, the competition study was analytically quite intricate. (For the mathematically knowledgeable, he points out that it involved the verification of a stable Hopf

bifurcation for a map.)

The graphic images which give shape to the data from the competition and cooperation studies were programmed on a personal computer by an honors math undergraduate, Brendan Mumey, whom Rogers employed on a summer grant from NSERC. Mumey is now enrolled in Roger's course Math 470: Introduction to Chaotic Dynamical Systems, being offered by the math department for the first time this year.

The different colors enlivening the images relate to how long (fractal time) a given point takes to reach the system's strange attractor. The images themselves were preserved by transferring them to film by photographing the computer's color monitor.

While the competition-cooperation models were not developed with a specific real-life system in mind, Roger's first foray into chaos, a joint project with his U of A colleague Jim Pounder, was a slightly more complicated variation of May's insect population model. Since then Rogers has also studied models relating to epidemics, and in 1983 while on sabbatical leave at Cornell University in New York he did work based on a problem in genetics—this proved to be one of the first studies of a system which had two stable attractors occurring simultaneously.

Because nonlinear analysis seems to touch on all areas of mathematics, Rogers has collaborated with a number of his departmental colleagues with different areas of expertise. Recent collaborations involved the algebraist Maziar Shirvani (a cellular automaton study) and the classical number theorist Harvey Abbot (a "superdiscrete" problem involving a finite space).

"Our math department can take pride in its significant contributions to nonlinear dynamics," says Rogers.

When the last image fades from the screen in the General Services Building Classroom, the memory of the photographs lingers, and along with it a visceral certainty that contained in such images are profound secrets of nature to which we are now closer. In this afterglow it is easy to share Roger's enthusiasm for chaos theory, and to nod when he predicts that nonlinear dynamics—chaos—may well dominate mathematical studies for "the next 50 years or so." ■

A reference used in the preparation of this article was the book Chaos: Making a New Science (Viking Penguin, 1987) by James Gleick. It is recommended reading for anyone interested in learning more about this line of discovery which is changing science's world view.



Strange attractors: A dynamical system which does not resolve itself to a state of equilibrium or a periodic motion is said to be governed by a strange attractor. The figures above—one resembling a bunny with floppy ears, the other shaped like a butterfly or manta ray—show strange attractors uncovered by Dr Rogers in his work at the University of Alberta.

Previous page: Dr. Rogers and student Brendan Mumey examine an image of chaos.

Remembering a Theatre Pioneer

by Lois McLean, '46 BEd

When I was a student at the University of Alberta from 1943 to 1946, we were lucky to have Sydney Risk as our theatre advisor.

Sydney was head of drama for the Department of Extension and his job took him all over Alberta, teaching, directing, adjudicating and giving workshops. He also taught acting and directing for six years at the Banff School of Fine Arts.

I really wanted to study drama at university and to eventually work in the theatre. At that time there were no theatre courses given. All plays were organized by students, with help from older, experienced advisors, often from "over town". It was great for us to have Sydney, a graduate from the University of British Columbia, who had worked in professional theatre in England and had an MA in

drama from Cornell. He was on campus, working in Extension and living at St Steve's.

In my final year, under Sydney's supervision, the student Drama Society organized an Inter-Year Play Competition, produced the first performance of "Stampede", an original three-act play by Gwen Pharis Ringwood (which Sydney directed), and established the first Western Canadian Inter-University Play Festival. This brought plays from the Universities of British Columbia, Saskatchewan, Manitoba and Alberta to the stage of Con Hall.

All these activities took place in our "spare time", outside class. Without Sydney's caring and skillful help we could not have accomplished such a busy program.

In the summer of 1946 he trained a small group of us to set out as Provincial Players, touring three one-act plays the length and breadth of the province. He found us a battered car to pull the curious trailer which held our portable scenery, props and costumes.

I was by then so bitten by the "theatre bug" that I accepted Sydney's invitation to become a founding member of his professional Everyman Theatre company in Vancouver, along with 14 young people he had gathered from across Canada.

That winter of 1946-47 we toured from Vancouver to Winnipeg, braving blizzards, breakdowns and blowouts. It was wonderful theatre training, playing a new town every night and never knowing whether we'd get through the drifts to the next performance. This was at a time when there was no professional theatre in the West, and hundreds of people saw their first play done by the Everyman Theatre.

One of our most popular

plays was Edmonton playwright Elsie Park Gowan's "The Last Cavemen", set on the shores of Lake Wabamum. Elsie was one of our greatest supporters and a close friend of Sydney's.

Sydney Risk's Everyman Theatre flourished for seven years in Vancouver, eventually achieving a home of its own in an old vaudeville theatre building. Many Canadian actors, still working in theatre today, began their careers on Everyman's stage, polishing their skills under Sydney's direction.

In later years, he taught at University of British Columbia Continuing Education, travelling British Columbia as he had done years before in Alberta.

Sydney's life was devoted to theatre and encouraging professionalism. After his death, in 1985, a group of friends, colleagues and relatives formed the Sydney J Risk Foundation for the purpose of giving monetary awards for excellence in acting, directing and playwriting to working professionals in Alberta and British Columbia. Recipients are chosen by experts from recognized theatres and/or institutions in those provinces.

To date, the Foundation has presented two awards to the authors of the best original plays at the Jessie Awards in Vancouver, in 1988 and 1989. The winners were Ian Weir and Alex Brown. It is hoped to extend the awards to Alberta in the near future.

Should you wish further information or to donate to the Foundation, please contact Donald H Risk, Swinton and Company, 840 Howe Street, Vancouver, British Columbia, V6Z 2M1. Tax receipts will be issued.

We would love to hear from anyone who saw an Everyman production or had personal memories of Sydney Risk.

The author graduated with an education degree from the University of Alberta in 1946. After her experience in the Everyman Theatre, Lois worked as a professional actress in England for eight years, returning to Edmonton to teach high school drama and English while beginning a family. In 1967 she moved to Vancouver, where her family of four are now young adults. She freelances as an actress in theatre, TV and films, and is active on the executive of the University of Alberta Alumni Association in Vancouver.

*"Maids of the Green and Gold
gather 'round
... whisper the legends of the
tribe ..."*

WAUNEITA

If you were an undergraduate woman attending the University of Alberta between 1908 and 1972, you were a Wauneita and I would like to hear from you!

New Trail will soon feature an article about the Wauneita Society and a complete history of the Society is being pieced together from archival material and from your recollections. Of special interest are any photographs, handbooks, journals, letters or minutes from past Wauneita executives and members. Contact Moira Proskin at 466-7162 or drop a note to the Editor of New Trail.



U of A Archives

The late Sydney Risk at the Banff School.

Faye Hicks, '85 MSc

Although aptitude tests pointed her towards a career in architecture, Faye Hicks was introduced to civil engineering while a student of architectural technology and found the possibilities of engineering to be a much more intriguing world to explore.

Hicks, recently hired as a tenure-track assistant professor at the University of Alberta, doubts that civil engineering's gain was architecture's loss. Or at least not a serious one: she recalls that "all of my buildings tended to look like shoe boxes . . . instead of being wild and exciting they were practical and functional." Like something an engineer would design, she was told.

And an engineer she would be. Once she realized that engineering was her chosen field, the New Brunswicker quickly moved up the educational ladder. After completing her architectural course at the New Brunswick Institute of Technology she moved on to the University of New Brunswick, where she completed her engineering undergraduate degree.

She was then recruited by Alberta environment, spent the next five years as a river engineer for that department, and at the same time pursued an MSc part-time at the U of A.

Buoyed by her sister's successes (her sister, Jane Yoemans, is an assistant professor of soil science at the University of Manitoba) and encouraged to continue her studies by her U of A faculty adviser, Peter Steffler, Hicks realized that a PhD was also attainable. Backed by supportive parents and her husband Les, who is a biochemistry technologist, Hicks is within sight of completing her PhD thesis this spring (it's on numerical modelling of unsteady open channel flows).

She now stands poised to



Professor Hicks: her research occupies centre stage in her academic life.

pursue a career in teaching and research. "In terms of computation modelling . . . it's the leading edge and it's where it's at right now." It's in this area where her long-term research efforts will be concentrated.

But while her research occupies centre stage in her own academic life, inevitably many people focus on her being a woman in a field where women have not traditionally been well-represented as the most interesting aspect of her career.

The new faculty member readily concedes that she is a rarity in that sense, but she says, "It doesn't seem like a novelty to me; it just seems like another day at work. I'm not used to thinking about that being a difference." And what about her colleagues? "Whether it's a factor or an issue with them . . .? I don't really think it is.

"Hopefully more women will be more interested in engineering and maybe by seeing someone on the faculty here they will sit back and consider pursuing a career in engineering," she says, noting that in general it would be nice to see more women and men considering

careers in civil engineering.

Her own career choice was made easier by her parents: "Our parents encouraged us not to close any doors and left it up to us to decide what we wanted to do," she says, adding that her parents made it quite clear that their children would never have to struggle through on their own.

She's looking forward to teaching next term and continuing her research. "The more you do research the more you learn about your field and the more you teach the more you learn about your field. The two are complementary, especially in terms of graduate education," she says.

On the broader question of where engineering in general is heading, Hicks believes society must adopt a new, more harmonious view of the purpose of engineering.

"For a long time engineers were seen as the means by which we harness and make nature knuckle under to our needs. But over the longer term, a new view is required. We shouldn't make it knuckle under; we should try to work in harmony with it, so that we optimize the things that we've built already, rather than just throwing out and building new things, and when we do need things, we should try to make them as

efficient as possible. I think that's where the research has to go," she says. Better understanding the physics surrounding these things helps us to better utilize the things we've built already, she explains.

Recognizing the polarization that takes place over water resources management, Hicks insists that there is nothing constructive about her taking sides on issues such as the Oldman River Dam. "The more constructive thing to do is to say that my objective in my career will be to pursue ways to try—and this may be very idealistic—to achieve the goal desired without causing tremendous, detrimental environmental impacts."

The foregoing was adapted from an article which originally appeared in the 30 November issue of the University of Alberta bulletin Folio.

Serving Their City

University of Alberta graduates have an enviable record in public service: the names of Joe Clark, Roland Michener, Peter Lougheed, Grant Devine, and others come quickly to mind. And these are only the best known of many Alberta graduates

who serve or have served their country, province or municipality through elected office.

There is nothing unusual then about finding two University of Alberta alumni serving side-by-side on a city council—but it does come as something of a surprise to find that two of the members of the city council of Quebec City have degrees from the University of Alberta.

Both Paul Mackey, '75 MSc and Winnie Frohn, '68 BA are members of Rassemblement Populaire, the party which won 15 of the 21 council seats and the mayoralty in Quebec City's November elections.

Mackey is a native of the province of Quebec who did graduate work in biochemistry at the U of A after obtaining his undergraduate science degree at Loyola. He went on to study urban planning at the University of Montreal and is now employed by Quebec's provincial transportation

department.

He first became involved in municipal politics in 1985 and says that a number of important concerns related to quality of life in the city prompted him to seek office last election, believing his transportation background was well suited to the job.

"I realized that transportation was one of the major factors in many of the issues at the civic level—noise pollution, air pollution, water pollution, parking questions, traffic questions . . .," he says.

Frohn was first elected to Quebec City council in 1985, at which time Rassemblement Populaire sat in opposition. Now that her party has the majority, she serves as vice-president of the executive committee.

A native of Denmark, Frohn moved to Toronto with her family as a young child. They later settled in Edmonton, where she completed high school (Ross Sheppard) and enrolled in the



La ville de Québec

Quebec City council members Frohn and Mackey.

U of A, graduating with an honors BA in classics.

While Frohn says that her background in classics (since leaving Alberta she has earned a master's degree and completed the course work towards a doctoral degree in ancient philosophy) may have influenced her interest in politics—"There was, I suppose, a bit of inspiration from the democratic ideas of ancient Greece"—a more direct factor was her involvement with a number of citizen groups. She says that after hearing so many good presentations to council fall on deaf ears, she couldn't help but conclude it was "time to change city hall." One of the changes that came about her first term was council's male-only composition—before 1985 no woman had sat on the Quebec City council.

Exploring the Ukrainian-Canadian Landscape

One reviewer discussing *Creating a Landscape: A Geography of Ukrainians in Canada* in a book review for one of Canada's major newspapers suggested that the atlas deserved a place in the home of every Canadian family of Ukrainian descent.

And indeed *Creating a Landscape*, published last year by the University of Toronto Press, is as handsome as well

as an informative book. On its glossy book jacket it features the painting *Baking Easter Bread* by William Kurelek, and the interior maps and graphs, which provide a comprehensive overview of the cultural landscape shaped by Ukrainian immigrants to Canada, are wonderfully well done by cartographer Geoffrey J. Matthews. Context is provided by a series of essays explaining significant trends and providing historical background.

Lubomyr Y. Luciuk, '84 PhD, who collaborated on the book, says that the idea for the book was sparked by some maps prepared for his U of A PhD thesis looking at Ukrainian immigration following the Second World War. He and co-author Bohdan S. Kordan, who teaches at Grant MacEwan College in Edmonton, first talked about doing a "booklet" illustrating patterns in Ukrainian immigration in Canada at a party in Edmonton, says Luciuk.

The book which resulted had a national gestation, he says: "conceived in Edmonton, nurtured in Winnipeg (by the Ukrainian Canadian Committee) and delivered in Toronto."

Luciuk, who sees *Creating a Landscape* as fittingly commemorating the centenary of Ukrainian settlement in Canada, is currently a Canada research fellow and assistant professor in the Department of Geography at Queen's University in Ontario.

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Class Notes

'26

James Milvain, LLB, '79 LLD (Honorary), recently was awarded an honorary degree by the U of Lethbridge.

'31

Dudley Menzies, BSc(Eng), a former professor of engineering at the U of A and a former Edmonton alderman, has had the bridge which will carry the LRT track from Edmonton's north side to the University named in his honor. Mr Menzies, now 83, was an Edmonton city commissioner from 1945 to 1970.

'46

Allen Ronaghan, BEd, keeps busy with his writing. The Edmonton resident is working on several projects connected with his U of Manitoba doctoral thesis.

'47

Eric Geddes, BComm, '80 LLD (Honorary), of Edmonton was recently appointed to the Order of Canada.

'50

John Dutton, BA, has been director of the Calgary Public Library since 1979.

'51

Arnold Hennig, BSc(Ag), and his wife **Helen Hennig (Bergmann)**, '50 Dip(Nu), of Red Deer are both retired and taking advantage of the warmth of Arizona winters.

George Gauthier, BSc, retired last June after 38 years with Westinghouse Canada as a service engineer. He lives in Hamilton, Ontario.

Kai Thomassen, BSc(Eng), a retired RCAF squadron leader, is the new president and chief executive officer for Hughes Aircraft of Canada. He previously served as group vice-president of Hughes Electro-Optical and Data Systems Groups in El Segundo, California.

John Parker, BSc(Eng), having recently resigned as commissioner of the N.W.T., has moved to Sidney, B.C. but plans to maintain close ties with the North.

Martin Hoyt, BEd, a provincial court judge in Lethbridge, has been granted an honorary degree by the U of Lethbridge.

'52

George Thomas-Peter, LLB, '51 BA, reports from Bournemouth, England that he retired for the third and last time in November 1989. "Propose to rest, write

and travel the world from this base by the sea."

'54

Francis McKinnon, BComm, vice-president, finance for TransAlta Utilities has been elected chairman of the Financial Executives Institute Canada.

'55

John F. Whitworth, a Calgary consultant, is the 1989-90 president of the Financial Executives Institute Canada chapter in Calgary.

Elmer Brooker, BSc, '58 MSc, chairman and CEO of EBA Engineering Consultants, Edmonton has been named to the board of directors of the Alberta Laser Institute.

'56

John Moore, LLB, '55 BA, of Calgary has been appointed a judge of the Provincial Court of Canada.

'58

Norman Olson, Dip(Ed), and his wife **Margaret Olson, '61 BEd**, now live in Edmonton. Norman, who retired from the foreign service of the Canadian Department of Immigration in 1987, now manages the Canadian Bible Society Book Centre in Edmonton. Margaret is coordinator of volunteers at Goodwill Rehabilitation Services of Alberta. **Cameron Strong, MD**, has been elected to the board of governors of the Mayo Clinic and Foundation, Rochester, Minnesota. **Daniel Skaret, BSc**, recently began a two year contract with the

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Lutheran World Federation, serving as the financial coordinator for the Zambia Christian Refugee Service.

'59

Ann Seagrove (Anderson), BEd, '57 BSc, '58 Dip(Ed), the department head, family studies at Sir Allan MacNab Secondary School in Hamilton, Ontario, recently returned from a year spent on a teaching exchange in Calen, North Queensland, Australia. In July she will be back "down under" as one of 12 Canadian delegates to the International Federation of Home Economics Council in Melbourne.

Clarence Roth, BSc, has been appointed CEO of Prince Rupert Grain Ltd. in Vancouver.

'60

William Pidruchney, LLB, '56 BA, who was chairman and CEO of the Alberta Securities Commission from 1982 until 1987, has been appointed vice-president, listings by the Vancouver Stock Exchange.

John Decore, LLB, '59 BA, recently joined the Edmonton law firm Duncan and Craig.

'62

John Ramsey, BSc(Eng), president of Ramsey Brokerage Co. Ltd, an Edmonton food brokerage company, has been appointed chairman of the board of governors of Edmonton's Grant MacEwan Community College. Active in the business community, the new college chairman is also president and part owner of Sigmatic Systems Scientific Research Company, a partner in Auto Dealer Group and a director of Pyprr Inc.

'63

Thomas Wood, BA, has been named president of Calgary's Mount Royal College.

'65

Paul Presidente, BSc, a veterinary parasitologist based in Attwood, Victoria, Australia, recently received a grant from the Australian Wool Development Fund to investigate the application of controlled release formulations for the control of blowfly strike, a major problem for Australia's sheep industry.

'66

Lee Fairbanks, MA, '53 Dip(Ed), '54 BPE, who retired June 1989 after having served the Edmon-

ton Public School Board for 34 years, most recently at Jasper Place High, was awarded the honor award of the Canadian Association for Health, Physical Education and Recreation (CAHER) in October.

'67

Anne Wheeler, BSc, the acclaimed Canadian filmmaker whose works include *Loyalties*, *Cowboys Don't Cry*, and *Bye Bye Blues*, received the 1989 Woman of the Year Award presented by *The Edmonton Sun* and the Edmonton Business and Professional Women's Club.

John Stamm, DDS, director of the Dental Research Center at the U of North Carolina at Chapel Hill School of Dentistry, was recently appointed dean of that school.

Max Christie, BSc(Eng), a lieutenant-colonel in the Canadian Forces was appointed commander divisional engineers, 1st Canadian Division, at a parade held at Canadian Forces Base Valcartier, Quebec on 14 October 1989. He is currently posted to 1st Canadian Division Headquarters in Kingston, Ontario with responsibility for the operational tasking of combat engineer units in Germany, Valcartier, Quebec and Gagetown, New Brunswick.

Keith McCrae, BSc, has been named vice-president international business development by Delta Catalytic Corporation.

'68

Robert Hughes, BEd, has retired after a 25-year teaching career with the Calgary Board of Education.

'69

Sharon Kupsch, BEd, of St. Albert, Alberta is a sales/service representative with Canada Post and the mother of three children.

David Dahle, MA, '67 BA, an associate professor of classics at Camrose Lutheran College recently visited "as many sites related to the ancient world as I could" during a sabbatical visit to Italy.

Alexander Tod, MEd, reports that the recent '69 MEd (Admin) 20-year reunion was considered a great success by the 19 (of 40) grades who attended. "With professors and wives we had 41 for the Friday evening and 29 for the Sunday picnic at Norm Tiement's place. Of the 41 they came from Australia (4), Van

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couver (2), Amos, Quebec (1), Calgary (2), and Lacombe (2)." Alex, who lives in Sydney, Australia, writes that plans are now being made for a 25-year reunion in September 1994.

'70

Wayne Mayes, BEd, is a grade six teacher at Mills Haven Elementary School in Sherwood Park, Alberta. "Celebrating 20th year in the profession!" writes Wayne.

Bill Gordon, BA, '68 BEd, recently completed a series of manuals on adolescent depression and suicide for use in Alberta secondary schools. A counsellor at Bev Facey Composite High School in Sherwood Park, Alberta, he was the 1988 recipient of the Murray Jampolsky Award as Alberta's outstanding school counsellor.

David Emerson, MA, '68 BA, resigned as CEO of the Canadian Western Bank to become deputy minister of finance and corporate relations with the Government of B.C.

'71

Beryl Matthewson, BSc, is a lab-

oratory scientist, development and research with Vancouver General Hospital's Division of Haematopathology.

Berry Hsu, BSc, earned a PhD from the U of London in 1989.

'72

Robert Hoskins, BA, of Edmonton has been a social worker for 17 years. The father of two teenagers, he serves as a Heart and Stroke Foundation captain and area chairman.

Caroline Clark (Cherniawsky), BSc(HEc), is manager of patient food services at the U of A Hospitals, Walter C. Mackenzie Health Sciences Centre.

Leon Cender, BComm, was recently appointed vice-president, business and regulatory affairs by Pacific Coast Energy Corporation.

Dean Wood, MEd, who joined Keyano College in Fort McMurray, Alberta in 1981, has been named the College's vice-president of instruction.

Gary Bauer, BComm, was recently named executive vice-president of the International Power Group of CU Power, a division of Canadian Utilities.

Harry Henshaw, MSc, manager of information planning for Alberta Education, recently completed a short-term World University Service of Canada assignment assisting Bhutan's department of education to upgrade its information systems.

Inga Jesswein, BA, earned MSc and DEd degrees from the U of Calgary and the U of Toronto respectively. She now lives in Lethbridge where she works as a counselling psychologist—recently she was on maternity leave following the birth of her second child.

Miriam Rubin, BA, who has a master's degree in social work, is with Metro Child Abuse in Toronto.

'73

Don Taylor, BPE, has taught elementary school for 12 years, all in Red Deer.

Heather Graham, BLS, who has served the Winnipeg Public Library as head of its extension and bookmobile division since 1986, now has added responsibilities as the library's publicity coordinator.

Martin Casault, BSc(Eng), has

been appointed manager, industrial operations, prairie region by the construction firm CANA limited.

Brewster Kwan, LLB, recently joined the Edmonton law firm Duncan and Craig.

Arno Schmidt, Dip(ED), retired from teaching last June. He serves as a councillor for the town of Redwater, Alberta.

'74

Alice Daniel (Colthart), MA, has been awarded the CFA designation by the Institute of Chartered Financial Analysts.

Darcy Yule, BSc(Forest), who has been transferred within the B.C. Forest Service to Campbell River, finds his work challenging and enjoys the weather especially winter ("no cold").

'75

Randolph McDonald, BComm, of Innisfail has been elected president of the Insurance Brokers Association of Alberta.

Ron Laing, MBA, '66 BSc, '70 BA, has been appointed vice-president, marketing by Inland Cement Limited.

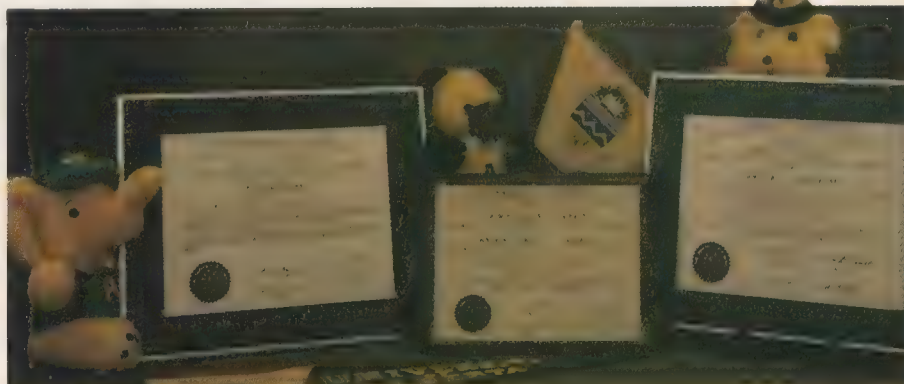


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'76

Elaine Bernard, BA, former director of the labor program at Simon Fraser University in B.C., is the new executive director of the Harvard University Trade Union Program.

Jack Upshall, BA, and his wife **Donna Upshall (Lennon)**, '80 BSc (Speech), live in Regina where Jack, who was previously director of communications for the Saskatchewan government's privatization department, now serves as executive assistant to the minister of trade and investment. Donna is employed with Saskatchewan Health and the couple has two children.

Vern Lessoway, BSc(Eng), has joined the Cohos Evamy Partners as an associate to take on the position of manager of electrical and mechanical engineering.

Dwayne Stoty, BComm, is general manager of Intefac of B.C. Inc., a Herman Miller Office Pavilion dealership in which he is a partner.

Raymond Chu, BSc, currently works for the Chase Manhattan Bank as the Groups systems manager in the operation and systems division located in Hong Kong.

Frank Bruseker, BSc, who received his BEd from the U of Calgary and taught in Calgary for 10 years, recently began a new career as the liberal MLA for Calgary Northwest last March. He and his wife have two children.

Carl Beniuk, BSc(Ag), is a full-time farmer, having taken over the family farm operation near Lac La Biche, Alberta. He is married and has three sons.

'77

Neil Currie, BA, and his wife and two children live in Australia, where he is composer-in-residence for the Adelaide Symphony Orchestra.

Dianne Allen, BComm, has been named executive director of the Grant MacEwan Community College Foundation.

Sharon Hadzariga (Harter), Dip(RehabMed), and her husband **Michael Hadzariga**, '80 BSc(Eng), live in Winnipeg, where he is now manager of the Manitoba division of Western Caissons, and she is enjoying parenting their two children.

Ian McKenzie, BA, is taking a six-month break from his career with the Canadian Parks Service to travel and participate in caving expeditions to Central America. He was recently town manager in Jasper National Park.

Garry Dahl, BSc, previously resid-

ing in Illinois was recently promoted by Zurich American Life to managing regional director for Texas, based in Dallas.

Gail Campbell (Beniuk), BSc(Pharm), who is married and the mother of two children, operates a veterinary hospital in St. Alberta, Alberta.

'78

Nyle St. Peter, BComm, has been named a partner by Coopers & Lybrand Limited, Edmonton.

Susan Poules (Potter), MEd, teaches French learning assistance for immersion students in Mission B.C.

'79

Allan Frankiw, BSc(Eng), and his wife **Diane Frankiw**, BEd, and their two boys live in Elk Point, Alberta. He is area superintendent for Norcen Energy Resources and a town councillor. She is a part-time teacher.

Laura Tanasychuk (Schmeelke), BEd, teaches grade two at Crawford Plains Elementary school in Edmonton. Married in July, she writes that she is "discovering the many facets of video production from the spouse's point of view."

Brad Anholt, BSc, and his wife **Elizabeth Anholt (Rogers)**, '79 BSc, now live in Ann Arbor, Michigan, where he is a Killam post-doctoral fellow in biology at the U of Michigan. Beth gave up her job as a UBC librarian to raise their two children.

Laura Roome (Haley), BEd, '77 BA, of Edson, Alberta reports that she teaches French half-time at the local high school. Her two children keep her busy the rest of the time.

Dean Slater, BSc(Eng), has been appointed manager, preconstruction services, Alberta and Saskatchewan by CANA Limited.

Ian McDonald, BComm, joined the partnership of Pannell Kerr MacGillivray, Chartered Accountants and Pannell Kerr Forster,

Management Consultants in September 1989.

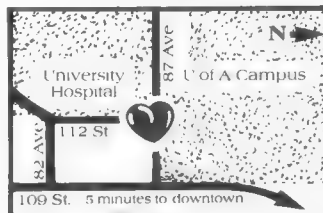
'80

Donna Skoreyko (Sweeney), BEd, and her husband **Greg Skoreyko**, '82 BA, have moved about in Alberta in the past few years. Greg began working with the Bank of Nova Scotia in Grande Prairie in 1983, was transferred first to Lloydminster and then to Valleyview, where he is now the manager. Donna takes care of the family at home.

David Coglton, BA, and his wife **Lorna Coglton (Rydman)**, '79 BEd,

have moved back to "sunny Alberta" after one year in Chicago and eight in Toronto. David is a senior communications specialist with TransAlta Utilities. Lorna is at home with their two children. **Kenneth Lucki**, BPE, is looking forward to spending time with family and friends and participating in winter sports having returned to Edmonton after eight years in Maui, where he kept busy running, diving, fishing and sailing charters ("crazy you say?") **Fiona Audy (Backhouse)**, BSc(OT), and her husband **Michel Audy**, '76 BComm, and their four children live outside Sherwood Park, Alberta. He is a partner in

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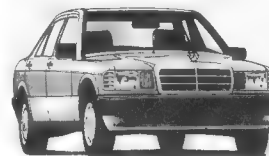
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the CA firm Gardiner, Karbani, Audy and Partners. She is a full-time mother and as a La Leche League leader.

Lionel Berry, BSc(Eng), lives in the Lake Huron resort town of Port Elgin and works as a project engineer at Ontario Hydro's Bruce Heavy Water Plant.

Barry James, BComm, is now a partner with Coopers Lybrand Limited, Edmonton.

'81

Larry Jenkinson, BComm, a senior manager in the corporate finance and valuations group of Peat Marwick Thorne in Edmonton, recently received the CBV

(Chartered Business Valuator) designation.

Sandra Fleming, BComm, and her husband moved to Vancouver four years ago. She's a senior telecommunications analyst for the Vancouver Stock Exchange.

Peter Yuen, BSc(Eng), works as a geotechnical engineer for a Calgary consulting firm.

Samuel Yeung, BComm, has received the Chartered Financial Analyst designation.

Anna Lee Boulton, BA, works in the municipal hall of Nagai (population 36,000) as part of the Japan Exchange and Teaching program.

Dinesh Marothia, PhD, is professor and head of the depart-

ment of agricultural and national resource economics at the Indira Gandhi Agricultural University in Raipur, India.

Marny Twigge, BA, reports that she is seeing the Baffin ("beautiful") and working for a business consulting company doing a wide variety of things while her husband is the Iqaluit sub-division NCO with the RCMP.

'82

Peter Williams, BSc, and his wife **Teresa Williams (Semeniuk)**, '83 BA, have returned to the Australian outback for two years to work at the small gold mining

town of Telfer. Peter is senior mining engineer for the Telfer Gold Mine.

Gloria Ouellette (Beniuk), BSc(Pharm), works as a pharmacist in Wetaskiwin, Alberta.

Dawn Ringrose, MBA, '80 BSc, has been promoted to manager, consulting in the Edmonton office of Pannell Kerr Forster, Management Consultants and Pannell Kerr MacGillivray, Chartered Accountants.

Simon McClure, BSc, earned an MD from McGill and now lives in Burlington, Vermont with his wife and newborn son while completing his residency in psychiatry at the U of Vermont.

In Memoriam

The Alumni Association extends its condolences to the families and friends of the following:

Cora Frances Facey, '17 BA July 1989

Samuel Caleb Ratcliffe, '18 BA, '18 BDiv, '18 MA

February 1990/Normal, Illinois

Nellie Isabel James, '21 BA January 1990

Howard Tracy Emery, '22 LLB

February 1990

Donald Hendry Allan, '23 BComm

December 1989/Tofield, Alberta

Lorne Francis Mitchell,

'25 Dip(Pharm) November 1989

Edmund Jabez Thompson, '26 BA, '33 MA December 1989

Josephine Ward, '26 Dip(Nu) December 1989

John Joseph Taylor, '28 BSc(Eng) September 1989

Thomas Alfred Chard, '29 BComm January 1990/Edmonton

Agnes Dowell Lynch, '29 BComm December 1989/Edmonton

Elof Olson, '29 BSc(Eng) February 1990

Norman William McLeod, '30 BSc(Eng) December 1989/Toronto

Beatrice Wilhemina McGavin, '32 BA November 1989/Vancouver

Edna Marie Kickham

(Nickerson), '33 Dip(Nu)

November 1989

Elizabeth Eleanor Mather

(Baker), '33 BA November 1989

Frances Patricia Blackburn,

'34 BA December 1989/

Streetsville, Ontario

Robert Richard Large,

'34 Dip(Pharm)

March 1989/Chilliwack, B.C.

Helen Elizabeth Moffat,

'34 Dip(Nu) December 1989

John Leslie Pidoux,

'34 BSc(Eng) November

1989/Bellefonte, Ontario

Lloyd Winston Bassett, '36 MD January 1990

Jack Scovil Charlesworth, '36

BA February 1990/Maui, Hawaii

Meta Doreen E Fraser, '36 BA

November 1989/Halifax

Andrew Oryschak, '36 LLB

October 1989

Robert Chambers, '37 BSc(Eng)

February 1989

Morris Gogek, '37 BComm

December 1989

Margaret Elizabeth Laycraft,

'37 Dip(Pharm)

August 1989/Wainwright, Alberta

Elizabeth Paulson, '37 BSc(Nu)

May 1989

Clarence James Fearon,

'38 BSc(Eng) December 1989

Wallace Roan Hanson,

'38 BSc(Ag) January 1990

Cecil Norman Tredger, '38 BSc,

'43 MD February 1990

Abram Harder, '39 DDS

January 1990/Barrhead, Alberta

James Robertson Francis, '40

MD January 1990/Pridis, Alberta

Benjamin Goodman, '40 MD

January 1990/Vancouver

Robert Joseph Zender, '40 MD

December 1989/Stettler, Alberta

John Theodore Burger, '42 BA,

'47 LLB January 1990

Adrian Miller Tallman,

'42 BSc(Eng) March 1989

Maxwell Yates, '42 MD

February 1990/Victoria

Lewis Samuel Garnsworthy,

'43 BA January 1990/Toronto

Jesse Frederick Gouge, '43 BA,

'44 LLB July 1989/Victoria

Arthur Walter Stinton, '43 BSc

October 1989/Calgary

Norman Robert Hollies, '44 BSc

December 1989/Montross, Virginia

Adam Joseph Kravetz, '45

BSc(Eng) December 1989/Toronto

Mary Vera Lynch-Staunton

(Sterling), '46 BA February

1990/Qualicum Beach, B.C.

Hymie Pollack, '47 BSc, '48 MD

November 1989/Edmonton

James Robertson Hemphill,

'48 BED, '59 BComm

January 1990/Viking, Alberta

Norman Hugh (Bill) McAfee, '48

BA February 1990/Vancouver

Alexander Muirhead, '48 BComm

November 1989/San Diego

Gordon Lyle Flynn, '49 BComm

August 1989/Medicine Hat, Alberta

Pericles Leonidas, '49 BSc(Eng)

December 1989

Charles Alexander MacDonell,

'49 BComm, '52 LLB October

1989/Grande Prairie, Alberta

Cedric Andrew Fraser,

'50 BSc(Ag) November

1989/Edmonton

William Fearon McLean, '50 BA,

'51 LLB December 1989

Harold William Webber,

'50 BSc(Ag)

November 1989/Tsawwassen, B.C.

Glenda Muriel Adams, '53 BED

January 1990

Beulah Darlene Paulson,

'54 Dip(Ed), '56 BED, '64 MED

November 1989/Edmonton

John Robert Buttle, '55 BSc(Eng)

February 1989

Lorna Kelly (Nuttyscombe),

'56 Dip(Nu) December 1989

Lois Aileen Blackwell,

'57 Dip(Rehab) January 1990

Leo Russell Reynolds, '57 BED

February 1990

James Richard Carroll, '59 MD

October 1989

William Strashok, '59 BED

February 1990

Hilda H. Warkentin, '59 BA

January 1990

Ronald Rudolph Naundorf,

'60 BA December 1989/

Queensville, Ontario

Lorne Duncan Stewart, '61 MED

December 1989/Comox, B.C.

Marilyn Shirley Ohlhauser,

'63 Cert(Arts), '65 BMus February

1989/Three Hills, Alberta

John M. Urichuk, '63 BED

December 1989/Coronation, Alberta

Dora Amie Wilson (Jackman), '64

BED November 1989/Edmonton

Marilynne Louise Salter, '65 BED

July 1989

Agnes Helen Kennedy, '66 BED

December 1989

Paul Savitsky, '66 BED

January 1990

Brian Meredith Kelly, '67 BSc

November 1989/Australia

James Andrew Common, '68 BA

November 1989

Zaida Kathleen Reimer, '69 BED

November 1989

William Charles Robert Rae,

'70 BComm

December 1989/St. Albert, Alberta

Patricia Mountford, '72 BED

November 1989/Edmonton

Mildred Irene Gilbertson, '73 BED

December 1989/Edmonton

Olga Meardi, '73 BED

December 1989/Hylo, Alberta

Eugene Nestor Mykyte,

'73 BSc(Nu) December 1989/Delta

Martin Bernard Shalka, '73 MED

February 1990/Vancouver, B.C.

James Frederick Turner, '74 BA

January 1990/Fort Saskatchewan

Floyd Tseung S. Wong, '74 BED,

'80 BComm December 1989

John Richard Halls, '76 BED

January 1989/Fort Vermilion

Ralph King Hole Jr, '81 BA

December 1989

Valerie Ann Greentree,

'83 BSc(Nu) September 1989/

San Diego

Margaret Mary P Embree,

'84 BFA(posthumous)

October 1983/Edmonton

Gertrud Irina Singh, '85 BED, '89

MLI July 1989

Laura Jane Stephenson, '86 BED

December 1989

'83

Catherine Stout (Wanchar), BEd, and **Curt Stout**, '86 BSc(Eng), were married in July and live in Edmonton. He is completing his master's degree in mechanical engineering and she is teaching.

Rod Wiltshire, MA, '80 BSc, who earned an LLB from Toronto and an LLM from Yale is now articling with the Toronto law firm Genest, Murray, Desbrisay and Lamek.

Bruce Weismiller, BComm, now married and the father of two children, lives in Surrey B.C. and is a partner in the CA firm Sadler Weismiller.

Malcolm Imray, BSc(Eng), flew for a small charter airline in northern Alberta before embarking on a year-long trip around the world. **Gordon Vogt**, BSc(Eng), and his wife **Linda Vogt (Kitzen)**, '80 BSc(Pharm), are enjoying their new son. They live in Calgary, where she manages a Safeway pharmacy and he is senior development engineer with Luscar Ltd.

Veronica Fraser (Murphy), BSc(PT), and her husband **Brent Fraser**, '83 BSc(Eng), live in Grande Prairie, Alberta. She is a physical therapist at Queen Elizabeth Hospital and he is a mechanical engineer with Risley Enterprises. Veronica also instructs ballroom dancing.

Dale Renz, BComm, is now controller, Canadian administered operations with Imperial Corporation, Vancouver.

Douglas Cox, BSc(Eng), and his wife **Karen Cox (Hole)**, '84 BSc(OT), were married in September and live in Edmonton. She works at the U of A Hospitals; he works for Princeton Developments.

Bryan Mekechuk, BComm, after three years with Clarkson Gordon, Toronto, is now in the MBA program at the U of Western Ontario.

Allan Howard, MSc, '75 BSc, and his wife **Nancy Howard (Bulger)**, '80 BSc(Pharm), recently moved to Lethbridge, where Allan now works at the Lethbridge Research Station as a soil moisture specialist.

'84

Jeffrey Marshall, BA, and his wife and daughter live in Edmonton, where he is a human resources officer with the Toronto Dominion Bank.

Gabriel Li, BSc, is a manager for Toronto's biggest jewellery chain. **Carolyn Leffers**, BEd, who teaches

elementary school and primary music in north Edmonton, is busy preparing for her wedding this spring.

Michael Lacusta, BSc, is an account executive for American Express in Vancouver.

Gregory Harris, MBA, who was married in November, lives in North Vancouver and is an account manager, commercial lending with the Bank of Montreal.

Brian de Kock, BSc(Ag), works for Dow Chemical Canada as Northern Alberta area manager for agricultural products.

Robert O'Shaughnessy, MBA, moved to Ontario as president of Thorn Lighting, a Thorn EMI subsidiary. He is also a member of the board of directors of TEMI Canada Inc.

Heather Hansen (Olynyk), BA, who earned an MEd in counselling from the U of Ottawa and worked for Fanshawe College and Children's Mental Health Services in Ontario, was married in July and now lives in Copenhagen, Denmark.

Lori McRae, BSc(HEC), works with the 4-H Branch of Alberta Agriculture.

Gloria Mah-Cawthorn, BSc(Pharm), has been busy since graduation, counselling a residency in radiopharmacy, working in retail and hospital pharmacy, travelling through Europe, and getting married. She now works with the Health Protection Branch in Ontario.

John McClure, BComm, who earned his law degree from the U of Toronto, is back in Alberta as an associate with Milner & Steer in Calgary.

'85

Doreen Schmid, BEd, and her two girls recently moved from Cereal, Alberta to Lacombe, where she teaches elementary school.

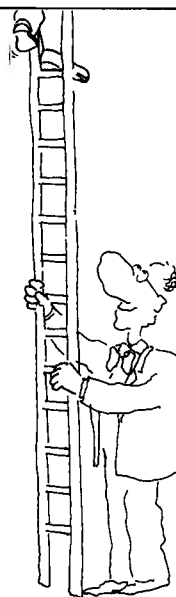
Deborah Will, BEd, who was married in July, teaches kindergarten in Calgary.

Russell Keating, BEd, teaches grade six at Gerard Redmond Community Catholic School in Hinton, Alberta.

James Hinatsu, BComm, and his wife **Maureen Bourke**, '87 BA, of Edmonton were married in August.

Carolyn Slater, BSc(Ag), and her husband **Robert McCreight**, '82 BSc(Ag), who were married in 1987, farm at Sexsmith, Alberta.

Keith Boyle, MBA, '84 BSc(Eng), is superintendent of engineering at AUR Resources' Kierens Division in Val d'Or, Quebec.



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'86

Katherine Beniuk, BComm, who works with Gulf Canada in Toronto, plans to be married in August and then take a year off beginning January 1991 for a world tour.

Kim Chan, BA, an art and design major, now works for an advertising agency in Hong Kong.

Helen Stephenson, BA, works for the Right Honourable Joe Clark as a member's assistant.

Gary Cook, BSc(Eng), reports that he is "currently living in Yellowknife, N.W.T., building igloos north of the 60th . . . seasonal work."

Lawrence Udo-Ekpo, PhD, is lecturer in contemporary issues and coordinator of the graduate program at the South Australian College of Advanced Education, Underdale Campus in Adelaide.

Joyce Hostyn, BA, who graduated last fall with an MA in Canadian Studies, is now assistant director of public affairs and the producer of a daily current affairs program for CKCU-FM in Ottawa.

Rene Huellstrung, BPE, an exercise therapist with the Workers' Compensation Board in

Edmonton, was recently married to a current U of A student.

'87

David Smith, BA, has been appointed annual giving coordinator at the U of Manitoba. He and his wife recently bought their first house.

Gail Murphy (Miklos), BSc, is a software designer for a B.C. Tel group.

Scott McPhee, BSc, and his wife **Carol McPhee (Ayer)**, '87 BSc, were married in August 1988.

Scott is a systems engineering representative for IBM in Edmonton; Carol is in her third year of nursing at the U of A.

Curtis Forbes, BA, and his wife **Barbara Forbes (Madsen)**, '88 BA, have returned to Edmonton following a European honeymoon. He is a case worker with the Workers' Compensation Board and she is a family support worker with Catholic Social Services.

Richard Price, BA, is in the first year of a PhD program in government at Cornell University in New York.

Tena Siebenga, MEd, is principal at East Edmonton Christian School.

Gary Perkins, LLB, and his wife **Diane Hoy**, '88 BSc(HEC), live in Calgary, where he works for the law firm Bennett Jones Verchore and she is a dietitian at Holy Cross Hospital.

Bruce Basaraba, BEd, is Canadian project manager for a CIDA sponsored rural water development project in Swaziland.

Alan Wilson, BSc(Eng), works for the U of A Department of Mechanical Engineering as a programmer/analyst responsible for computer networking.

Julie Froese (Susinski), BComm, is back to school as a full-time MBA student at the U of Manitoba.

Karen Tjosvold, BA, has entered a master's program in speech pathology at the U of Western Ontario.

Karen Trotter, BSc, is enjoying her first year in a MDiv program at Canadian Southern Baptist Seminary in Cochrane, Alberta.

Douglas Lundquist, BSc, was recently transferred to the Pacific Weather Centre in Vancouver by Environment Canada. **Myles Kitagawa**, BA, is director of the Greenpeace office in Edmonton.

Leslie-Anne Jevne, BEd, who

taught in Wetaskiwin and Canmore, Alberta, is now advertising manager for the *Banff Crag & Canyon* and the *Canmore Leader*. **Susan Winkelaar**, BA, earned a journalism degree at Carleton U and is now an assistant editor of the *Carp Valley Press* in Ontario. **Karyn Decore**, LLB, '83 BA, recently joined the Edmonton law firm Duncan and Craig.

'88

Shawn Switzer, BSc(Forest), is woods supervisor for Houston Forest Products, Houston, B.C.

Lea Stirling, BA, is working towards a PhD in classical archeology at the U of Michigan.

Russell Foster, BA, '86 BSc, is a graduate student in medicine at the northernmost U in the world, the U of Tromsø in Tromsø, Norway.

Angelo Fernando, PhD, is a post-doctoral fellow working with Dr BG Kratochvil of the U of A chemistry department.

Robert DeJong, BSc, spent the last year with Chevron Canada Resources as a programmer/analyst in the exploration and land systems division.

Thorsten Watterodt, BSc(Eng), works as an engineer in Munich, West Germany and is a commercial pilot in his spare time.

Simon Page, BEd, teaches in St. Albert, Alberta after having spent a year teaching in Quebec.

Toni Guffei, BA, a statistical analyst with Transport Canada, is currently working with the group proposing a third runway at Vancouver International Airport.

Kandice Lawrence, BSc(Nu), works in the ICU at U Hospital in London, Ontario and serves on the publication committee for the Canadian Critical Care Nursing Association.

'89

Emelyn Desjarlais, BSc(HEC), lives in Edmonton but commutes to Wetaskiwin, where she is a child welfare worker handling a Native caseload.

David Leung, BA, is a stockbroker with Levesque Beaubien Geoffrion in Edmonton.

James Quarshie, PhD, is currently a lecturer (assistant professor) at the Goroka Teachers' College, U of Papua New Guinea.

Angie Renville, BA, of St. Albert, Alberta, has started a Chinese herbal products (bee pollen and ginseng tonic) business while job hunting.

Project Leadership Dialogue

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Cut it out!

I/We plan to be a part of the fun and homecoming of Reunion Weekend 1990!

Name and Address _____

Postal Code _____

Year of Graduation/Degree _____

Telephone _____

Name of Spouse/Guest _____

Please send me tickets for the following events (indicate number):

- _____ Friday Reception (Classes to '50) \$10/person
- _____ Grazing Party (Classes '51 to '89) \$15/person
- _____ Breakfast at Earl's \$7/person
- _____ Homecoming Luncheon \$14/person
- _____ Gala Dinner and Dance \$35/person

TOTAL ENCLOSED: _____

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I/We plan to take part in the following free events (indicate number):

- _____ 1990 Annual General Meeting
- _____ Campus Tours
- _____ Super Saturday Lectures
- _____ Arts Faculty Drop-In Centre
- _____ President's Brunch ('25, '30 and '40 grads only)

I would like to help organize a reunion of (class or other group). _____

Super Saturday Returns

Saturday

Breakfast at Earl's

Begin the day at the restaurant that is "a campus legend in its own time."

CAMPUS EARL'S / 8:30 a.m. to 9:30 a.m.

Campus Tours

See today's campus with student guides.

LEAVING FROM EARL'S / 9:30 a.m. to 10:30 a.m.

Super Saturday Lectures

Return to the classroom for stimulating 50-minute lectures on fascinating subjects by some of the University's best known professors.

BUSINESS BUILDING / 10:00 a.m. to 4:00 p.m.

Arts Drop in Centre

Visit Dean Clements and her colleagues in the Faculty of Arts.

6-40 HUMANITIES CENTRE / 2:00 p.m. to 4:00 p.m.

Saturday Luncheon

Lunch and a great view..

FACULTY CLUB / 12:00 noon to 1:30 p.m.

Gala Dinner and Dance

Featuring fine dining, noted humorist Merv Huston and dancing to the mellow sound of the Golden Altos.

WESTIN HOTEL / 6:30 p.m. to 1:00 a.m.

Sunday

President's Brunch

President Davenport hosts graduates from the Classes of 1925, 1930, and 1940.

MAYFAIR GOLF & COUNTRY CLUB / 11:00 a.m.

Thursday

Alumni Association Annual General Meeting

Alumni are welcome but must pre-register.

UNIVERSITY HALL / 5:30 p.m. to 7:00 p.m.

Friday

Opening Reception for 1922 to 1950 Classes

Visit with classmates of years gone by.

FACULTY CLUB / 7:00 p.m. to 9:00 p.m.

Grazing Party for 1951 to 1989 Classes

Mingle with friends and feast on fabulous hors d'oeuvres.

WESTIN HOTEL / 8:00 p.m. to 10:00 p.m.

Special Anniversary Classes

Among the special reunion classes this year are those of 1925, 1930 (Diamond), 1935, 1940 (Gold), 1945, 1950, 1955, 1960, 1965 (Silver), 1970, 1975, 1980.

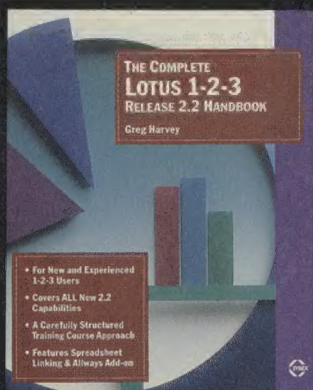
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September 20-23

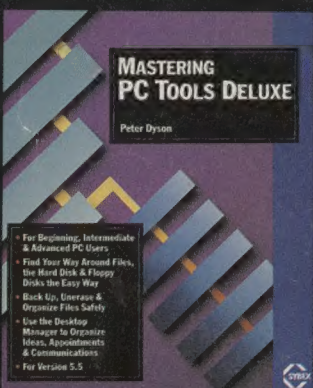
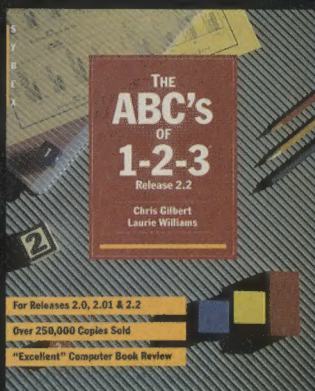
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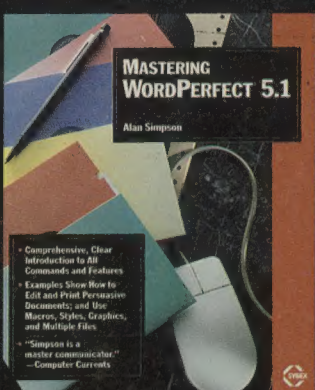
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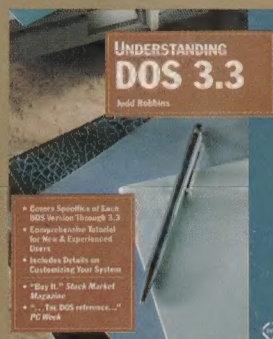
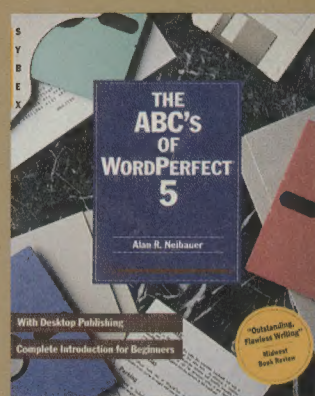
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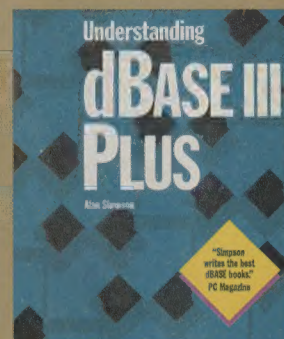


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